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ABSTRACT

An international colloquium, held in Bucharest, Romania, in November, 1980, brought together educational researchers and persons responsible for educational policies and programs. They examined ways and means of making research more relevant to socioeconomic development and of increasing the internal effectiveness of education. Topics of discussion were: (1) who needs research in education and what kind of research; and (2) what are the main obstacles that prevent research from having a more decisive impact on educational systems. Also discussed were cooperation and communications between researchers and decision makers, planners, administrators, teachers, and parents in matters concerning: the determination of research priorities, the conduct of research activities, procedures for disseminating results, and strategies for making use of research findings. This monograph presents discussions on the main conclusions of the colloquium and suggestions for future action. Contributions from participants, who represented developed and developing nations, are included. Annexed are a list of documents generated by the colloquium and a list of participants. (JD)

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Division of
Structures,
Content, Methods
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PARIS, 19 September 1981
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International Colloquium

Research and Practice in Education:

How to strengthen links between research and practice in order to improve general education

European Centre for Higher Education
Bucharest, Romania
10-15 November 1980

FINAL REPORT

801.1

U.S. DEPARTMENT OF EDUCATION
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A

MAIN CONCLUSIONS

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A. MAIN CONCLUSIONS

I. INTRODUCTION

1. An international colloquium (Category VIII) on "Research and Practice in Education: how to strengthen links between research and practice in order to improve general education" was organized by Unesco in Bucharest (Romania) from 10 to 15 November 1980 at the European Centre for Higher Education (CEPES), in accordance with the programme and budget adopted by the General Conference at its twentieth session (20 C/5, para. 1345).

The following participated in this colloquium:

16 participants invited in their personal capacity by the Director-General of Unesco (two others, from India and Spain, were also invited but were unable to attend);

5 observers representing non-governmental organizations;

12 observers representing various national institutions, including 9 in Romania.

(See Annex I for list of participants).

Mr A.S. Dajani, UNDP Representative in Romania, was present at the opening meeting.

2. The participants had at their disposal the annotated agenda (ED-80/CONF.816/3) prepared by the Secretariat, and working documents prepared by certain participants and observers and the Unesco Division of Higher Education, and a bibliography prepared jointly by the International Bureau of Education (IBE) and the Unesco Division of Structures, Content, Methods and Techniques of Education (see Annex II for list of documents). On the occasion of the colloquium the participants also received for examination the first edition of the Directory of Educational Research Institutions, prepared by the International Bureau of Education (IBE) and the Division of Structures, Content, Methods and Techniques of Education (ED/SCM).

3. The colloquium was opened by Mr A. Ofjord, Director of CEPES, representing the Director-General, who welcomed the participants and greeted Professor Tripsa, Secretary of State, representing the Ministry of Education and Teaching of Romania. In his address to the participants, Mr Tripsa welcomed them to Romania and stressed the importance that the Romanian Government attached to research and to the theme of the colloquium organized by Unesco in Bucharest. He then expounded the basic principles underlying the Romanian authorities' foreign policy and education policy, drawing attention to some of the most significant results obtained in the last few years. In conclusion, he emphasized that the Ministry attached great importance to educational research and to the application of its findings to educational practice. The representative of the Secretariat, Mr E. Brunswic, explained the significance of the colloquium in relation to the Organization's programme as a whole and indicated what results were expected. Thanking the Romanian authorities for their traditional hospitality, he stressed that the Secretariat had wished to hold the colloquium in Romania on account of the role played by that country in promoting peace and collaboration between developing countries and developed countries and in applying the principles adopted by the Helsinki Conference.

4. The participants then elected the Bureau of the Colloquium as follows:

Chairman:	E. Malmquist (Sweden)
Vice-Chairman:	H. Azuma (Japan)
Rapporteur-General:	G. Vaideanu (Romania)

5. The participants held 7 plenary sessions and for 2 sessions split into three working groups: one bilingual, one French-speaking and one English-speaking. The officers of the working groups were elected as follows:

First group	Chairman	L. Navarro de Britto (Brazil)
	Rapporteur:	P. Orefice (International Council for Adult Education)
Second group	Chairman:	Z. Ferge (Hungary)
	Rapporteur:	H. Montagner (France)
Third group	Chairman:	Z. Wager (El Salvador)
	Rapporteur:	I. Omari (Tanzania)

Mr E. Brunswic, Head of the Section on Methods, Materials and Techniques of Education, acted as secretary of the colloquium. The Unesco Secretariat was also represented by Mr A. Øfjord, Director of CEPES, and his colleagues, Mr J. Chandler, Director of the International Bureau of Education (Geneva), Mr R. Dave, Director of the Unesco Institute for Education (Hamburg), and Mr Ohsako, specialist in the Section of Structures and Content of Education.

II. OBJECTIVES OF THE COLLOQUIUM AND BASIC CONCEPTS

6. The purpose of the colloquium was to bring together research workers active in fields of direct interest to education and different kinds of users of research findings - persons responsible for educational policies and programmes, administrators, educators and parents - so that they might examine ways and means whereby research could be more effectively geared to the needs of education with a view to making educational practice more relevant to socio-economic development and increasing the internal effectiveness of education. Thanks to the experience of the participants - research workers, decision-makers, educators, journalists, etc. - the colloquium was able to discuss a coherent set of topics centred around the main objectives:

Who needs research in education; what kind of research?

What are the main obstacles that prevent research from having a more decisive impact on educational macro- and micro-systems?

In what ways can co-operation and communication be ensured between research workers on the one hand, and decision-makers, planners, administrators, teachers and parents on the other, in matters concerning:

(a) the determination of research priorities;

(b) the conduct of research activities;

(c) procedures for disseminating results;

(d) strategies for making use of research findings.

Lastly, the participants were invited to make suggestions for action to be taken both at national level and in areas of international co-operation.

7. The working document and the documents prepared by the participants, which constitute a considered reaction to the agenda proposed by Unesco, together with the discussions, highlighted the fact that the problem submitted to the colloquium for examination was important and real. Because they are concerned to adapt education to the demands of socio-economic and cultural development, almost all the developing countries have in the last few decades set up national educational research institutes or centres for curriculum development. Other countries have well-established traditions in this field and are able to draw on the results obtained by experimental units, some of which were set up well before the Second World War. This is the case in the Federal Republic of Germany, France, the United States and the United Kingdom. The functions and budget of certain research institutions, for example, the National Institute for Education Research (Japan), have been increased. In the socialist countries, highly centralized structures exist in the form of academies of educational science with their specialized institutes (USSR, GDR) or institutes with national responsibilities. The first edition of the Directory of Educational Research Institutions contains over 550 entries relating to more than 117 countries or regions. Investments in research have become, if not satisfactory, at least more substantial over the last two decades.

8. Even though research in education is very differently organized and financed from one country to another, it is possible in nearly every case to identify the four main institutional structures described in the working document (ref. ED-80/CONF.816/4), namely:

university-based research: departments, faculties of education, institutes, etc.;

autonomous research institutes, academies of educational science, national pedagogical institutes, centres for curriculum development;

research units within governmental agencies, offices responsible for statistics and forecasting, planning services, etc.;

research units within other organizations.(1)

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(1) University-based research is traditionally conducted by individual faculty members who, in addition to their teaching activities, engage in basic or applied research activities. These units usually retain a large measure of intellectual independence, university approval being required only for the choice of research topics.

The emergence of autonomous research institutes is a fairly recent development. Their staff are generally full-time research workers whose function is to carry out applied and sometimes basic research. In principle, they are free to decide on their research topics.

The function of research institutes which are attached to a governmental agency is to meet the immediate needs of that agency (usually the Ministry of Education or a planning office).

Lastly, there exist research units which are attached to other organizations: teachers' associations, industrial, commercial or agricultural associations interested in education, etc.

Several countries have established specific structures to ensure the co-ordination of all research in education at the national or federal level: central research agencies or research councils. Sometimes the same institution (an academy or national research centre) combines the two functions, conducting its own research and co-ordinating all research activities in the country.

At the international level, mention should be made of the numerous governmental or non-governmental international organizations and the national centres with regional or international responsibilities which seek either to conduct comparative research projects or to help the developing countries to carry out research.(1)

9. Turning to the problem of types of research, the participants recognized that the distinction between basic research (or conclusion-oriented research) and applied research (or decision-oriented or client-oriented research) was useful, even though it is difficult to draw the line between theory and application, a sound theory always being the most practical of assets; this is especially true because in the last decade the thinking of educational theoreticians has become receptive to the problems of educational practice. Basic research in education is not simply a matter of applying theories or knowledge obtained by other disciplines; it seeks to establish laws or general principles relating to educational processes and to identify the characteristics of education in the future. However, a knowledge of the probable or desirable future of education becomes an incentive and a criterion for improving and/or evaluating applied research. Applied research is mainly concerned with working out valid answers to the questions arising within the education system.

A further relationship whose importance was stressed is the one between systematic research planned and carried out by specialized research workers within the framework of programmes extending over several years, and spontaneous research conducted in educational institutions by educators who may or may not be assisted by research workers. In order to guard against improvisations or "false innovations", systematic research must provide educators who engage in research activities with methodological tools and criteria for evaluation.

Lastly, attention should be drawn to the emergence of a new type of research - participatory research - which interconnects theory and practice and involves educators and learners alike in the research process as full partners.

10. The participants agreed that an analysis of research in education and the transfer of its results to educational practice should take into consideration the characteristics and dimensions of education in our time. The school no longer has the monopoly of education even though it plays a fundamental role in the development of the child and in preparing him for social life. The approach will therefore take into consideration, within the context of lifelong education, all levels and all types of education, and hence both the horizontal and the vertical

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(1) The following examples can be given: as regards national centres, the International Development Research Centre, Canada; the Centre for International Education, University of Texas, United States, etc.; as regards non-governmental organizations, IEA (International Association for the Evaluation of Educational Achievement); WCCS (World Council for Comparative Education Societies); WAER (World Association for Educational Research), etc.; as regards governmental organizations, Unesco with the Unesco Institute of Education, Hamburg, the International Institute for Educational Planning in Paris, the International Bureau of Education in Geneva and the Centres for Higher Education in Bucharest and Caracas, OECD with CERI, the Organization of American States, SEAMES with, in particular, INNOTECH, etc.

dimensions of education. Just as the adaptation of education has become a permanent process, notwithstanding even the radical changes which take place periodically, so research too should become a systematic activity, benefiting from medium- and short-term programming.

11. The last of the preliminary observations concerned the evolution and characteristics of educational research. On the one hand, research in education has become a multidisciplinary activity; the results produced by other disciplines - sociology, psychology, physiology, ergonomics, cybernetics, economics, etc. - have proved useful and have already had an impact on the development of education. On the other hand, educational research has evolved and has come into the mainstream of contemporary science, having become receptive to the methods, techniques and relevant findings of the other sciences. It can now be said that there already exists something of a tradition where the multidisciplinary approach to education is concerned and that there is an increasingly marked tendency, at both the national and the international levels, to use integrated methods which have taken into account the nature and pedagogical purpose of the educational process.

As regards the status and functions of research in education (including integrated or non-integrated multidisiplinary approaches), the participants agreed that it was useless to think that education could be improved by taking measures based solely on the findings of experimental research. However, reforms of the education system which ignore research findings, the conclusions of comparative studies or evaluations run great risks.

III. RELATION BETWEEN NEEDS AND RESEARCH IN EDUCATION

12. While there are needs which are not identified or are identified too late by research workers, there are also research findings or projects which are premature and do not seem useful, but which at some time or other prove to be relevant and applicable: this is true, in particular, of some basic research work. Moreover, any reform or innovation in education and, implicity, all applied research, are motivated by a particular philosophy, and the philosophy of education, shaped as it is by speculative thought or basic research, must not lose sight of the present and future needs of a given country and of the world community. Generally speaking, research findings are integrated into educational practice only in so far as they converge or, at least, are compatible with the options and values which, at a given moment, determine the thrust of education policy. It should also be stressed that during the last few decades prospective studies on education have become instruments for tackling and solving present-day problems.

13. The diversity of socio-educational situations and the variety of problems to be solved were thoroughly discussed. Priorities vary from one region or one category of country (developing countries) to another (industrialized countries) and, undoubtedly, in the same country, from one period to another. The diversity of needs and situations and, in particular, the magnitude of the needs of developing countries, must be recognized, but it is neverthless essential not to minimize the similarity of problems in education, a similarity which makes it possible not only to organize collaboration between countries and the exchange of methodologies, instruments and results, but also to carry out international programmes for research in education.

14. Although they were not unaware of the fact that research is not an activity closed to educators and/or administrators, the participants acknowledged the existence of two communities - research workers and users - which have different and sometimes conflicting values. However, their dissimilar functions and standpoints cannot be pleaded as reasons for failing to make adequate use, or even any

use, of the results of research in educational practice, for these two separate communities are in fact complementary as regards their lines of approach to social demands and the development of education. Decision-makers, educators, pupils or students and parents, who have more and more problems to solve, need research. This need justifies the existence and financing of medium-term or short-term research programmes. The participants tried to identify and group users according to their position in relation to the results produced by research workers.

(a) First, there are those who benefit directly from research, who are continually involved in the educational process and who are called upon to apply the results: the authorities responsible for school and out-of-school education systems (decision-makers and administrators), educators as agents, and pupils and students as subjects of education.

(b) Then there are those who benefit indirectly and/or are periodically concerned by the problems of education and the results of educational research: parents, authorities responsible for other sectors of society, scientific or sports associations, press, radio and television, youth organizations, etc.

The needs expressed by these categories of beneficiary differ even when it is a case of solving the same problem or communicating the results of the same research project. It is therefore, essential to take into account the specific nature of the users' needs if the findings of research are to be transferred more effectively to educational practice.

15. In connection with the position of users in relation to research, the participants also considered the various levels at which needs can be determined. According to their status and resources, research workers may seek to tackle and solve the problems raised:

at the institutional level (schools, universities, secondary-school pupils' or students' centres, youth organizations, associations for adult education, etc.);

at the local or community level;

at the provincial level;

at the national level (particularly in centralized systems);

at the regional or international level (evaluations).

16. It is therefore of fundamental importance that needs be taken into account by research in order to increase the impact of research on educational practice. Research conducted in isolation cannot produce relevant results. Bringing research more into line with the needs of users, from the point of view of topics, methodologies and language, is a prerequisite for turning its results to good account and ensuring its development. But what are those needs? Only those needs felt by direct users (administrators, teachers, etc.) or all needs, including those which sometimes escape the notice of those users? Only those needs identified under the pressure of a particular social demand, or also those determined by future requirements and the probable evolution of education? Attention was drawn to the difficulty of identifying or correctly formulating a need and then of translating it into terms of research.

17. Lastly, a distinction should be made, between permanent needs and temporary needs or between current needs and those determined by the future. Different

demands may therefore be made on research at different times; there is a marked increase in the volume of needs expressed during periods of profound change in education when teachers and decision-makers are faced with difficulties. Introducing greater flexibility into structures and content, promoting active methods, reducing the school drop-out rate, etc., have each in their turn been defined as a research priority by different governments. When priorities are determined solely under the pressure of this kind of need, communication between research workers and users inevitably becomes episodic and medium-term research programmes are upst. Hence the idea that research should go beyond the level of identified needs and assist those responsible for education to formulate medium-term reforms.

It was further noted that research was often taken by surprise when changes occurred in educational policies or objectives or when needs or problems suddenly became top priorities. Hence the idea that research should gather wide-ranging information and, if possible, establish a pool of solutions or suggestions to be drawn on in various hypothetical situations.

18. A reform or partial transformation of educational practice should take into consideration and strike a balance between two poles, the demands of society and the basic aspirations of individuals. Research carried out at the national or international level has highlighted the fact that social development and the rapid progress of science and technology frequently make a greater impact on educational practice (objectives, content, learning methods, evaluation methods, etc.) than the desire to foster the development of human beings and of children in particular. The socio-economic factor takes precedence over the human factor. It must be borne in mind, however, that although unilateral solutions may seem, from the short-term standpoint, to be good solutions, they eventually prove dangerous because it is necessary, if development is to progress on harmonious and basically sound lines, to centre the process on man, treating him both as the instrument and as the end of development. For this reason the participants emphasized that it is also the duty of those engaged in research to study the child, his development, his needs and their evolution.

19. The success of efforts to bring research into line with educational needs and with socio-economic and cultural development also depends on traditions and on the attitude of users (and particularly decision-makers) to research and its results; this attitude may oscillate, according to the country or period, between absolute confidence and mistrust. Scepticism as regards research is due sometimes to the shortcomings of research but, at other times, to the users' lack of training or educational culture.

20. The participants stressed the important role of intermediaries (specialized services or agents, documentation centres, experimental schools, teachers, consultants or community leaders, etc.) in identifying the needs of users. Such intermediaries have sometimes made it possible to identify topics which have traditionally remained beyond the pale of academic research:

school timetables and school work rhythms;

school buildings;

the quality of school life: type of relations, cultural atmosphere, children's games, etc.

The procedures adopted to determine research priorities could, according to the participants, become a means of bringing the standpoints of research workers and users closer together.

21. Various methods are employed to determine priorities and draw up research programmes that are relevant to needs. Sometimes research units have recourse to questionnaires and direct contact with users to ascertain their priority needs and their views concerning the functions of research.

Certain countries already have significant experience in drawing up programmes related to the requirements of society and the needs of different categories of users. The work of defining short- and medium-term research programmes is done in four stages, as follows:

(a) consultation of the probable beneficiaries;

(b) publication of a project;

(c) analysis of the project with the users (interministerial and interdisciplinary analysis);

(d) selection of priorities in the light of resources (staff, budget, etc.) and preparation of medium-term and short-term programmes.

On the basis of a project discussed with the users, the research units may conclude contracts; sometimes the contracts stipulate not only the obligations of research workers and users, but also the means of applying the results obtained (e.g. production of teaching materials, training courses for the introduction of new methods, organization of pilot schools or classes).

In other countries (the Soviet Union for instance), research units are periodically commissioned to carry out projects for various ministries or national institutions with interests in the field of education. In the socialist countries the research programme is a component of the general five-year plan drawn up by the state. Educational research is thus obliged to establish a relationship with the other sectors of society.

One group of participants drew attention to certain particularly valuable methods of determining priorities: preliminary fact-finding research, sounding out the community, participatory research (which is also a useful means of disseminating results), a multifactorial and multidisciplinary approach, consultations and meetings between decision-makers, research workers and direct users (educators, parents).

22. Considering, in the context of the link between educational research and practice, the need to gear research programmes to established needs, the participants felt that it was important to define their approach to this problem. Research has the right, and indeed the duty, to go beyond the level attained at present by education and to look into its future; at the same time, anticipating and preparing projects does not mean disregarding the needs of the present. In order to work out and check his hypotheses, the research worker needs total intellectual freedom; when he responds to the needs of users and collaborates with them in all the phases of an applied research project, he should not feel that there is a risk of pressure being brought to bear on his methods of work or of interpreting data. By and large, research workers are confronted with three groups of people and their demands:

decision-makers who generally need to legitimize their political, economic, cultural and other decisions, and who act in the present;

educators who act in continuity with the past;

the subjects of education, who are continually developing in a social environment which is also continually changing.

23. The above considerations led the participants to examine two alternative paths for research:

(a) a long path (its length being consonant with the nature of the problem to be solved) which demands the fullest possible knowledge of the child's or adult's development;

(b) a short path which should be followed only when the existence of certain constraints makes it impossible to opt immediately for the long path and when decisions nevertheless have to be taken quickly. Three groups of constraints may make it advisable to follow the short path for research:

(1) the need for a complete overhaul of educational structures when their reform becomes a matter of urgency owing to a radical change in society. In the case of reforms of this magnitude, there is no time, before taking the basic decision, to attempt a forecast (by the simulation method or by any other means) of the effects and potential results of the new structures to be established. This remains true even when the reform in question is preceded by thorough preparatory work. It is thus the nature of the decision to be taken that precludes the choice of the long path;

(2) circumstantial constraints (political, economic, social);

(3) constraints due to a lack of: resources, structures, qualified personnel; experience.

This is the case in particular in most of the developing countries. It frequently happens that decision-makers who have been forced to take hasty measures subsequently initiate a research programme designed to follow the long path for the purposes of evaluation and adjustment.

IV. OBSTACLES TO BE OVERCOME IN ORDER TO INCREASE THE IMPACT OF RESEARCH ON EDUCATIONAL PRACTICE

24. Research workers, decision-makers and educators form communities which differ in varying degrees as regards their approach to contemporary society and, in particular, to the future of education and desirable changes. These differences in outlook are revealed in the relations between research workers and users and there are as many obstacles to be overcome as there are points of divergence. Research traditions play an important role in matters concerning the transfer of research results to educational practice. In some countries research is well established, educational laboratories have long existed and eminent educationalists have awakend public interest in educational thought and research; there, consultations between research workers and decision-makers can almost be said to be the rule. There are other cases where educational research is struggling to assert itself and obtain a more suitable status. A wide range of situations therefore exists and the participants expressed the view that cases where research in education has proved itself and has helped, sometimes for decades, to place education at the service of socio-economic and cultural development should be studied by Unesco and that the findings of the study should be made available to the international community.

25. Before discussing the obstacles to be overcome, the participants observed that many encouraging examples can already be quoted to demonstrate that research can contribute to the improvement of educational policy and practice. Significant examples will be found in a recent publication containing studies co-ordinated by P. Suppes under the title, "Impact of Research on Education: some case-studies", as well as in other works referred to in the bibliography prepared for the colloquium (see ED-80/CONF.816/8).

It can be argued that the process of transferring the results produced by research is a slow one. But would it not be more to the point to say that educational practice, which is the most complicated social subsystem, cannot be transformed in the same way as one would change a production line in an industrial plant.

26. Despite its spectacular development, which was highlighted by most of the participants in their contributions, and notwithstanding the efforts made by the developing countries to establish their own national structures, research in education does not always fulfil the expectations of the users (particularly those of decision makers and teachers).

Preoccupied as they are by their status and advancement, research workers tend to produce publications rather than solutions to the problems raised by educational practice or social life. It should be borne in mind that neither long-term research projects nor publications are essential for tackling certain problems; contemporary research offers a multitude of paths or methods capable of producing reliable and acceptable solutions in a relatively short time.

Educational research institutes or centres for curriculum development established in developing countries have rarely succeeded in overcoming a tendency to depend upon the industrialized countries in the orientation and organization of research.

Research is slow in relation to the evolution of social life and the needs of users, particularly those of decision-makers. Educators, for their part, take little interest in experimental research which extends over many years without indicating a probable completion date nor even producing provisional conclusions.

In addition to the time-lag between the attainment of a relevant result and its application to educational practice or between the expression of a need for decision-oriented research and the actual availability of the desired results, there are also qualitative discrepancies. These are attributable both to research workers and to users (including decision-makers and educators).

27. Where research workers are concerned, the problems are as follows:

(i) Research workers do not vary the way in which they present their documents and publications to meet the requirements of the probable readership: decision-makers, planners, teachers, research workers, etc. A planner needs statistics; a research worker wants to know the methodology of the research as well as the results; an educator particularly needs conclusions and advice about his field of activity, which is educational practice. It has been observed that research workers are not prepared to draft reports for decision-makers in the form of a concise statement of the problem, possible solutions and their implications (financial, political, etc.).

(ii) Research workers do not have the necessary skills or experience to help decision-makers and teachers to define and formulate their needs. Training programmes for researchers focus almost exclusively upon research methodology, ignoring topics which could bring research closer to educational practice: educational policy and administration, educational planning, etc.

(iii) Sophistication in the presentation of research results has become a formidable obstacle, not only for decision-makers but also for teachers. The discussion arising out of the analysis of this aspect of contemporary research led to two complementary conclusions: (a) research in education is obliged, by the very nature of the phenomena studied, to take into consideration a large number of variables and make use of mathematical tools, and this line of approach and way of advancing is to be encouraged; (b) most users need a clear and concise presentation of the conclusions reached and the changes to be made and not a presentation of the research methodology and the mathematical or statistical tools employed.

28. Where decision-makers and planners or administrators are concerned, other obstacles or difficulties can be identified:

(i) shortcomings in the decision-making process which is traditionally based on experience and common sense and turns a blind eye to research. Often research priorities are not defined in a systematic way. A request for a particular piece of research is the result of a decision taken on an ad hoc basis without assessing current or future needs;

(ii) distrust of the results produced by research and/or indifference to basic research;

(iii) lack of time to participate in technical meetings, in the periodic analysis of research findings;

(iv) a tendency to establish unilateral or bureaucratic relations between decision-making and research, limiting co-operation to the occasional transmission of information or requests;

(v) the focusing of interest almost exclusively on the present and a lack of interest in the prospects of education in the near and more distant future;

(vi) a lack of the training and skills required in order to be capable of properly interpreting research findings;

(vii) insufficient information about comparative education and the methodology of the reform of the education system.

29. As for teachers, they have a basic role to play in the implementation of an innovation or a reform based on the results of educational research, but the attitude of the teaching profession to the products of research (projected reforms, new curricula, new methods, new materials) is far from being homogeneous.

(i) Conservatism is not the rule, but it must be said that teachers are more inclined to maintain or to maintain with improvements what already exists than to take responsibility for an innovation or to commit themselves actively to a reform of content or methods. However, there are some teachers - the most progressive ones - who participate willingly in systematic research or spontaneously introduce innovations in their own schools.

(ii) One formidable obstacle is the lack of time. Change always demands, in addition to the necessary retraining, a greater effort on the part of teachers, pupils and parents. Furthermore, changes in respect of educational objectives, the promotion of active methods, or the introduction of individualized learning, always entail an improvement in the organization of content and a reduction in syllabuses. It has now become clear that no country has succeeded in effectively modernizing education without undertaking a bold restructuring of curricula and without providing psychological and material incentives for teachers engaged in educational innovation. Motivation is an important factor in any change but it becomes quite decisive when it is a question of educational innovation. The tendency of some national authorities to impose changes on educators without allowing them the necessary time to study and reconsider their attitudes and working methods and without enlisting the support of parents can only lead to a dead end.

(iii) Lastly, pre-service training prepares teachers neither for research nor for the application of research results; in-service training only partially succeeds in filling these gaps.

30. A radical change or even an innovation in education almost always presupposes a change in the mentality and behaviour of educators, parents and pupils. It is a fact, however, that the implementation of changes on the basis of the findings of research is a stage which is often neglected both financially and technically by decision-makers and research workers; this neglect is likely to give rise to great difficulties when the time comes to apply the findings of a research project, and may even prevent them from being faithfully and effectively transferred to educational practice. If they are to be successful in carrying out the changes requested or advocated by the authorities and by research workers, educators need assistance consisting in systematic information, demonstrations performed in experimental institutions and technical support in their own establishments to enable them to incorporate new elements in all aspects of their work. The participants therefore took into consideration not only the obstacles which impede the transfer of research results to educational practice, but also the factors which generate a distortion of the models proposed by researchers and thus affect the anticipated results. They also recognized that decision-makers, administrators and educators are all subject to constraints which limit their capacity for making use of research. These constraints include limited resources, the lack of time, personality factors and uncertainty.

31. Most countries have neither the traditions nor a mechanism or structure which would enable them to carry out such operations as are essential to the successful transfer of research findings to educational practice, and in particular:

(a) an inventory and classification of needs and research results;

(b) an analysis of the results already obtained according to the categories of beneficiaries;

(c) the systematic dissemination of results in accordance with the needs of users;

(d) the provision of technical support for educators in their establishments.

Finally, as education is only a subsystem of the whole social system, the effectiveness of the results of educational research also depends on social, cultural and political factors. Some research results, although valid, are rejected by the cultural environment, even if they are applied through administrative decisions. The success of a particular reform based on research findings often depends on the kind of interaction that it generates with the other components of the social system.

V. MODALITIES OF COMMUNICATION AND CO-OPERATION BETWEEN RESEARCHERS AND USERS

32. In order to deal with the problem of modalities of co-operation between research workers and users in improving the use of research results by educational practitioners, the participants took into consideration the four models proposed in the working document (ED-80/CONF.816/6).

(a) The decision-driven model, which can be described as follows:

- (i) a decision-maker identifies a problem or situation that demands a solution;
- (ii) the problem is referred to a researcher who has, or finds, and proposes a reliable solution;
- (iii) the choice of a solution is made by the decision-maker on the basis of the researcher's recommendations. Even though this model disregards or seems to disregard the constraints and difficulties to be overcome, it has been used in many countries (Sweden, Romania, Bulgaria) to solve such problems as: the most suitable age for enrolling children in primary school, the differences to be established between the various types of education after general education according to the intellectual capabilities and interests of the children, etc.

(b) Whereas the decision-driven model may be described as a specific problem looking for a solution, the knowledge-driven model assumes that there is a linear sequence of research - development - dissemination - adoption that links basic research with educational practice; hence it can be said that in this case a specific solution (a theory, an idea, etc.) is looking for a problem or a possible application. An example of this model is afforded by the introduction into educational practice of teaching machines as a direct spin-off from Skinner's research as a learning theorist.

(c) The general enlightenment model assumes that research is useful and used even though it does not have an immediate and direct effect on practice. In this case, research affects practice by gradually forming, sensitizing or reorienting the perceptions of users, who include, besides educators and decision-makers, parents, youth movements, associations for adult education, cultural or sports associations, etc. According to this model, research acts upon the cultural and educational level of the public and helps to maintain an atmosphere conducive to innovation. Here again, great stress is laid on the value of basic research in education and the usefulness of educational publications intended for the general public.

(d) The social interaction model goes one step further than the general enlightenment model and highlights the interactive nature of decisions in which research competes with other factors in the result-utilization process. The existence of this model is explained by the fact that most decisions are not directly or exclusively based on research and thus research offers only one of the inputs which contribute to a decision. This model takes account of the aforementioned fact that the reliability of research is limited; for this reason it is used as a starting-point and as a source of suggestions in decision-making.

33. In view of the great diversity of forms of co-operation between researchers and users, the participants acknowledged that these four models represented well-tried lines of approach to the problem of transferring research findings to educational practice. They then proceeded to examine methods and/or formulae calculated to improve co-operation between research and educational practice from the following aspects:

the determination of priorities as a means of bringing research closer to practice in education;

the planning and conduct of research activities;

ways of disseminating results with a view to encouraging their use;

strategies for promoting the use of research findings.

34. The participants agreed that the improvement of co-operation between researchers and users should begin with the determination of priorities and the definition of research programmes. But who should identify the priorities and judge their relative importance, and according to what criteria? In some cases, the interests of researchers, decision-makers, educators and students tend to converge, and in other cases each individual announces his own priorities and values. The pressures exercised on education and the weight of the various social demands are felt first by decision-makers, administrators and planners. It is they who possess significant data about the relation between education and the world of work, the cost-benefit ratio, etc. At the level of educational practice, on the other hand, educators, pupils and parents can identify the aspirations and needs of individuals and families. Researchers, in their turn, are well placed to evaluate the efficiency of the education system and identify its shortcomings or to look into the future of education and elucidate the question of the education of the future. Irrespective of the status of research (independent unit, unit attached to a government department, etc.), dialogue is necessary, and qualified representatives should participate in the dialogue in order to consider:

the identification and classification of priorities;

the choice of priorities in the light of the requirements of society and the basic values underlying education policy;

the analysis of priorities in relation to the financial and human resources available for research;

the comparison of needs with results already obtained and ongoing basic and applied research.

35. The participants pointed out that certain research topics might be regarded as priorities for long periods or even as permanent priorities. Hence the idea of compiling lists to provide guidance for research. They gave the following examples of topics to be listed: how to improve the operation of the education system, the evaluation of educational performance in relation to educational objectives, the periodic revision (every 4th, 6th or 8th year) of the objectives and content of education in the light of developments in science, culture and the

world of work, how to ensure the effectiveness of the education system and the educational process, how to ensure the democratization of education from the point of view of access and success, the educational problems of disadvantaged social classes (living on the fringes of big cities, in rural areas, etc.), the education of handicapped children, etc.

The participants also observed that such priorities were sometimes defined, and particularly in centralized systems, by national plans which serve as a starting-point for drawing up the research programme. The establishment of long-term priorities is conducive to the continuity of research and makes it possible for research workers to specialize.

36. The planning of research should always provide for the dissemination and application of its results. From the outset, therefore, research should be designed to solve an existing problem by responding to a specific need and not simply to add a new title to library holdings. The participants stressed that it was not enough to associate users (particularly educators and sometimes pupils) in all phases of research, but that it was also necessary to adapt research methods to the goal pursued and to anticipate the possible repercussions of the proposed solution if it was adopted as a response to a given problem. The credibility of research and the use of its products by decision-makers and educators depend largely on the quality of the methodology, internal consistency, objectivity, an honest interpretation of data and a realistic presentation of findings, all of which are convincing arguments for attracting the attention of potential users. The researcher is under an obligation to be realistic and provide users with correct information. In this respect, research in education has a great deal to learn from agricultural or medical research.

37. While researchers do not like to be called on after the event to justify decisions which have already been taken, users, for their part, like to be involved in the designing of research projects and to be kept informed about the subsequent progress of work. There exist many different means whereby users can be involved and kept informed. Some of them have already been mentioned: experimental schools, periodic consultations, and so on. To this list should be added the organization of technical meetings by researchers which are also open to users (the latter being invited not only to take part in the discussions, but also to describe their own experience), the adoption of a system providing for regular rotation between researchers and administrators, etc.

38. The responsibility for the dissemination of theories and research findings does not devolve on researchers alone, even if they prepare clear and concise reports, adapted to the needs of the different categories of users, or give courses or lectures. It is true that the steps taken to ensure dissemination represent an essential stage in the process of transferring results to educational practice. A continuous and systematic research activity should not be planned without providing for a similar dissemination activity, and there are many countries where the systematic and faithful dissemination of research results needs to be organized or strengthened. Almost everywhere there exist sources of possible support educational libraries or documentation centres with more or less qualified staff, teachers' associations which organize debates and talks for educators, offices for the distribution of teaching aids, etc.

The participants expressed the view that if the findings yielded by research are to be systematically transferred to educational practice, it is necessary, first, that a dissemination programme be prepared by decision-makers in collaboration with researchers and educators, and, secondly, that specialists in dissemination be appointed or trained in research institutes, libraries, teachers' associations and, in particular, school inspectorates. Decision-makers need balanced and relevant syntheses; educators need to know about possible implications for educational practice. In order to prepare reports or syntheses which prove useful to each of these groups it is essential to have significant experience of educational practice and a sound knowledge of socio-political constraints.

39. Stressing once again the need to minimize the time-lag between the attainment of a result and its application, the participants noted that an essential role is played in the process of bridging this gap by intermediary bodies (specialized services and agents, libraries, media, inspectors, experimental or pilot schools, specialists in dissemination, etc.). These intermediaries can ensure continuous two-way communication between researchers and users. Experimental schools, where researchers and educators work systematically together, often have a "snowball" effect on the dissemination of results. Some countries (Japan, United Kingdom, Soviet Union) have established special mechanisms or worked out quite new solutions to this problem which would justify the launching of a survey on the role of these intermediary services in the application of research findings. The participants also emphasized that action research and participatory research had become means of promoting encounters and collaboration between researchers and users.

40. In order to replace occasional communication, which is currently prevalent in most countries, by continuous co-operation between users and researchers, systematic liaison is necessary. The way in which such liaison is organized depends on the centralized or non-centralized character of the education system. Without becoming a cumbersome structue or, worse still, yet another obstacle between research and educational practice, such liaison should become a continuous and systematic process. It was mentioned that such forms of systematic liaison already exist in some countries. Their effectiveness depends largely on the attitude and educational culture of the users. The improvement of teacher training for educators and, in particular, the introduction of a basic course in the methodology and functions of research seem to be important steps in that direction. At the same time, the training of researchers should be made to match a function which has become more complicated and more difficult. The role of universities and/or teacher training institutes is essential in this regard, as is shown in the document entitled "Teachers and Educational Research" (ED-80/CONF.816/7) which was prepared by the Unesco Division of Higher Education.

VI. CONCLUSIONS OF THE COLLOQUIUM

41. The problem of the application of the findings of educational research, is not a new one but it was dealt with from a wider point of view than at previous meetings, including those organized by the Unesco Institute for Education or by the Secretariat, where the participants were mainly concerned with the relations between educational reforms and educational research, or only with research on curricula and methods. The interdisciplinary approach adopted by the colloquium and the fact that emphasis was laid on the relations not only between research and decision-making but also between research and educational practice are in line with other efforts made in the same direction at international level.

42. On the last day, the participants discussed suggestions for action under the following headings: general, research, dissemination, training, international co-operation. These suggestions appear in section B below.

43. During the last session, the Secretariat gave the participants certain information concerning the follow-up action that would be taken on the

colloquium. Within the framework of Unesco's programme, the colloquium performs a dual function: it serves as an occasion for stock-taking and as a platform for the launching of other activities in the same field; having been preceded by regional meetings or conferences, it will be followed by specific activities. The Secretariat will direct its efforts, on the one hand, towards case-studies and comparative studies calculated to provide useful suggestions for the guidance of all those who are concerned about improving the status of research in education and transferring its findings to educational practice and, on the other hand, towards training seminars.

44. The colloquium closed with addresses delivered by Professor Malmquist and Mr Ofjord, Director of CEPES, who, on behalf of the Director-General, thanked the participants and the host country.

B

SUGGESTIONS FOR ACTION

I. GENERAL

II. RESEARCH

II. DISSEMINATION

IV. TRAINING

V. INTERNATIONAL CO-OPERATION

B. SUGGESTIONS FOR ACTION

I. GENERAL

1. Unesco should undertake a comparative study on the ways in which educational research is organized in a selected number of countries. Unesco should also prepare a document on the utilization of research for education, treating education as a lifelong process. This document, which would be based on contributions concerning specific modes of application of research findings to be provided by specialists from different countries, should be of an analytical and evaluative nature.

2. Unesco should encourage Member States to provide adequate funds to sustain basic research in education.

3. In order to devise coherent programmes of applied research related to explicit needs of decision-makers, administrators and teachers, it is recommended that national authorities consider the following action:

   (a) to encourage production of regular, up-dated reviews of research in each relevant area in order to identify unexamined issues;

   (b) to promote consultations between researchers and practitioners in order to discover the problems that are amenable to research and to establish priorities among them;

   (c) to prepare from time to time state-of-the-art reviews on specific issues in education such as pupil achievement, vocational guidance and educational materials;

   (d) to prepare review papers on information needs of senior officials in the Ministries of Education, especially in the developing countries.

4 National authorities should consider the following actions in order to reduce the time-lag between research and utilization:

   (a) to foresee the problem or priority area in, for example, a forthcoming educational plan and organize research well in advance;

   (b) to introduce into a particular educational programme a component of formative research with a view to improving the results on the basis of the data yielded by this research;

   (c) whenever a decision has been made on an ad hoc basis, to introduce evaluative research in order to improve future action.

II. RESEARCH

5. It is suggested that the national authorities may consider the following investigations:

   (a) to study at the national level the procedures of needs assessment concerning educational research for different categories of users such as decision-makers, administrators, curriculum designers, teachers and members of teaching teams;

(b) in the light of the four conceptual models of the research-utilization process identified during the colloquium, to analyse selected national research projects in order to arrive at a better understanding of the relationship from the standpoints of different levels and types of research:

(i) between research and decision-making; and

(ii) between research-based decision-making and its implementation.

6. Unesco should undertake a study in order to identify and examine the various methods already used for transferring and disseminating research findings in Member States.

7. Unesco should organize an international survey on the status, objectives and methods of research units of any kind dealing with out-of-school education, giving particular attention to participatory research.

8. Unesco should consider the possibility of organizing:

(i) an interdisciplinary symposium on research concerning child development by inviting contributions from various disciplines so as to interlink the physiological, mental and behavioural aspects of development in accordance with the physical and social environment;

(ii) an interdisciplinary symposium on the process of learning in respect of children and adults;

(iii) in view of the fact that interaction between culture and education has not so far been well explored, an interdisciplinary research seminar on "the influence of socio-cultural traditions of different societies upon the acceptability of innovative projects in education".

9. In the context of International Youth Year (1985), Unesco should encourage Member States to develop and strengthen co-operation between pedagogical institutions and other structures of educational research on the one hand, and between research centres and institutes for training and informing young people on the other.

Further, Unesco should consider the possibility of organizing an international meeting on the theme "Research on youth problems in the context of educational research and its role in stimulating the participation of young people in social life".

III. DISSEMINATION

10. A variety of procedures should be developed and followed according to the category and size of the target user population. In addition to the publication of research reports in different versions (full report, short report, summary, press kits, etc.), preparation of surveys, use of journals, mass media, information storage and retrieval systems, training programmes and orientation seminars should be considered. Some examples are:

(a) for teachers: (school and out-of-school education)	- use of teacher journals; - integration of the topic in pre-service and in-service teacher-training programmes; - use of union congresses and seminars; - use of school libraries and teachers' libraries; - participation of teachers in research activities;

- (b) for planners:
    - establishing computerized data bases (statistics and their analyses);
    - state-of-the-art reports on future developments to be prepared on the basis of international educational research;
    - interdisciplinary analyses (economics of education, etc.);
- (c) for administrators:
    - short summaries of research findings;
    - quick question-answer service for urgent decision-making;
    - taking into account research findings in the drafting of laws, regulations and administrative texts;
- (d) for parents and the general public:
    - involvement of "educational research interpreters" (journalists and editors of educational desks in radio and TV stations) in research conferences, seminars, etc.;
    - reporting on new research findings in meetings of parents' associations;
    - using mass media to inform the wider public including youth;
    - allowing parents to visit experimental schools and classes.

11. Research projects should be so organized and funded as to allow an adequate period after their completion for dissemination of the findings and consultation with potential users concerning their application.

12. Educational authorities should also devise appropriate mechanisms to stimulate different categories of educators to participate in the research process and in the application of its findings, as a normal part of their work.

13. In the bibliographies on research, inventories of different media such as films video-cassettes, etc. concerned with research should also be included.

IV. TRAINING

14. In order to enhance the use of research findings, it is necessary for educational practitioners to (i) understand the research findings and their implications; (ii) organize and synthesize these findings with existing knowledge and experience; and then (iii) apply the synthesized knowledge to pertinent educational problems and practices. Such competences should be developed in educators of different categories through pre-service and in-service training activities, special training programmes, orientation seminars for senior administrators, etc.

15. The training programmes for researchers should include skills for presenting results in a clear and concise form.

16. Seminars and workshops for researchers and users should be organized periodically at the local, national, regional and international levels. Such seminars would ensure better understanding and use of research results on the part of practitioners and better understanding on the part of researchers of the problems that practitioners face which call for research on a priority basis, and would thus actively contribute to the improvement of educational practice.

V. INTERNATIONAL CO-OPERATION

17. In order to improve co-operation between developing and developed countries with a view to narrowing the gap existing between them in matters of educational research:

(a) Unesco should organize regional and international meetings on the problems of educational research in developing countries, with the participation of researchers from both developing and developed countries;

(b) research programmes on education and training undertaken by foreign experts both in and with reference to developing countries should involve more active participation on the part of national researchers, and procedures as well as findings should be fully and systematically shared with them;

(c) Unesco should consider the possibility of initiating a study on deontological problems in bilateral and multilateral educational research;

(d) an overall strategy should be worked out for increasing educational research capacities and infrastructures in developing countries.

18. The following areas of co-operation will become particularly important at the international level during the next few years:

the retrieval and dissemination of information relevant to educational research;

the development of research methods and techniques and the training of researchers; and

the critical analysis and synthesis of the results of scientific studies with the aim of producing new and more reliable knowledge.

C

PARTICIPANTS' CONTRIBUTIONS

H. AZUMA	Needs for and Obstacles to Educational Research in Japan
J. CHANDLER	Who Needs Research?
D. DANCKWORTT	Seven Theses on the Application of Research Findings in Development Programmes in the Field of Education and Training
Z. FERGE	Is there Something Wrong with the Implementation of Educational Research?
M. GEVREY	Communication from the World Confederation of Organizations of the Teaching Profession
M.L. van HERREWEGHE	Research and Practice
A.G. KHRIPKOVA	The Selection of Modern Educational Research Topics and their Relevance to Practical Educational Needs
H. KIDA	Educational Research Institutes in Japan
I. KOTOVA	Research Activities and Educational Practice in the People's Republic of Bulgaria
F. MAHLER	Research and Practice in Education: the Standpoint of the Subjects of the Educational Process
E. MALMQUIST	Some Viewpoints on Strategies for Utilization of Educational Research Findings
S.H. MITRA	Research and Practice in Education
H. MONTAGNER	What Ontogenetic Studies can Contribute to Reflection on the Theme "Research and Practice in Education"
S. MORSI	A Participant's Contribution
L. NAVARRO de BRITTO	Educational Research and Regional Dissemination in Latin America
I.M. OMARI	Some Obstacles to Diffusion and Utilization of Educational Research
P. OREFICE	Methodological Notes on Participatory Research in Education: an Experiment in Establishing Links between Theory and Practice
E. PALMER	Instructional Design for Complex Technologies: the Challenges for Research
V. RADULIAN	The Romanian System for Integrating Educational Research and Educational Practice

A. SINGER	A Romanian Experiment concerning Participatory Research in Adult Education and the Dissemination of the Findings of Educational Research
J.B. TORO	Some Trends and Characteristics of Educational Research in Colombia
G. VAIDEANU	Prerequisites for the Establishment of a Mechanism Capable of Linking Research and Practice in Education
A. YATES	The Influence of Research on Educatioanl Policy and Practice

Needs for and obstacles to educational research in Japan

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I. Types of educational research

I will first distinguish five types of educational research:

1. Philosophy-oriented studies. Education is usually seen as a value-oriented activity. Philosophy-oriented studies are concerned with values, ideals and ideologies, and are most directly relevant to the goals of education.

2. Knowledge-oriented studies. These correspond to what Cronbach and Suppes (1969) called conclusion-oriented studies. The primary purpose of this type of research is to enrich, deepen and structure basic scientific knowledge which has potential relevance to educational practice. Its relationship to educational practice is fully discussed in Laska and Zanden's paper and will not be repeated here.

3. Policy-oriented studies. Their purpose is to provide bases for making specific educational policy decisions. They are often commissioned by governments, administrators and political organizations.

4. Practice-oriented studies. This type includes a wide variety of developmental studies. Research is carried out on new educational methods, systems, materials, etc., which could be optimal for a given target population, or social, political and economic conditions.

5. Routine check studies. Even without specifically identifying problems, it is important to check periodically that the actual educational system is functioning as expected. This will often bring to light needs for other types of research.

II. Needs depend on national and social priorities

Although each type of research is needed to some extent everywhere, at any time, the urgency is not the same. It depends to a great extent on national and social priorities.

When a country is under strong pressure for industrial and economic development, practice-oriented and policy-oriented studies tend to be given priority.

Education is responsible for preparing people for those intellectual and technical skills which are indispensable for national survival and development; that need is urgent. Implementation of appropriate educational systems and methods cannot wait until philosophical and scientific arguments are settled.

As this type of pressure diminishes, people's value orientation and educational needs become diversified. Usually by that time, training in very obvious and urgent skills has been going on for some time, with certain success. One problem is whether it is possible to carry it beyond presently available models and examples. The need to refer back to philosophy-oriented and knowledge-oriented studies becomes stronger.

Bearing this in mind, I will list what I perceive to be the current needs in Japan.

III. Needs in Japan

1. Change for the future. The modern school system, introduced in Japan a little over 100 years ago, spread very rapidly over the country, was effectively centrally controlled, and was a success in the sense that, in terms of basic intellectual skills some quality control could be carried out. It contributed enormously to industrial development. At the same time, however, it had a homogenizing effect on culture and the population. School practice tended to lack that flexibility needed to meet the needs of a changing world. The recommendation of the Central Advisory Council to the Minister of Education, in 1971, listed six challenges which made educational reform an urgent necessity. These were: effects of industrialization on the population; effects of urbanization; changes in family structure and kinship ties; increased life expectancy and the need to live meaningfully in retirement; changes in the role of women and the diversification of culture and value orientation resulting from the growth of inter-cultural communication. How the flexibility and creativity of educational practice in Japan can be increased, is an urgently needed research topic.

Japanese educators are aware that new developments are necessary if the challenges of the coming century are to be met. The general directions are: adaptation to individual needs and styles, more stress on creative and innovative abilities without sacrificing what is fundamental; fostering human and international orientation. Old practices are being re-examined and new methods explored with these orientations in mind. It is hoped that educational technology will open up new possibilities. Many ideas and proposals have been put forward, including methods developed in other countries. What is needed are non-partisan critical examinations of merits and de-merits, exploration of how these can be implemented in conjunction with various background conditions, and adequate provision of materials and equipment. Some of these efforts can be seen in the activities of "research and development schools" appointed on triannual bases by the government. Several non-governmental teacher groups are also engaged in the development and dissemination of methods and techniques.

2. Good evaluation of educational outcomes is desired by all those concerned with education, although political and philosophical controversies exist on methods of assessment and the use made of results.

One area for evaluation is the nation-wide assessment of achievements which had been given up for about thirteen years, but which is now being reconsidered by the government. Ways of preventing results being used to criticize individual teachers and schools and avoiding competition amongst schools in different districts are being explored. As the government drafts the syllabuses to be followed by schools and by writers of textbooks, it quite understandly desires periodical assessment of achievements.

In addition, teachers want diagnostic information on individual pupils in order to adapt teaching methods to individual needs. The assessment of pupils' attitudes and interests is an area to which more and more attention has been given in recent years.

There is strong demand for the development of theories, methods and techniques to carry out such evaluational studies. Although many tests exist, very few critical examinations of them have been undertaken by researchers not directly concerned with their development. A comprehensive endogenous theory of achievement and pupil styles is still lacking. Closely related to evaluation studies is the study of the methods of student selection and placement. It has been widely and frequently pointed out that college and high-school examinations were much too competitive, distorting school curricula and perturbing sound psychological development. No substantial study has been made to find out the extent and nature of the damage. The attempts made by the colleges' and schools' boards to improve selection procedures were without much success. This problem alone deserves intensive work by substantial research manpower.

3. Teachers are deeply concerned with the apparent increase in psychological problems among youngsters. The reasons are said to be prolongation of adolescence, lack of relevance in school subjects, changing values, the shift from the extended family system to the nuclear family system, destruction of community ties due to rapid urbanization, fathers' loss of confidence in discipline, etc. Nothing has been pinned down. Conventional counselling does not seem to be cost-effective. Epidemiological surveys, psycho-sociological and psycho-pathological studies are needed to give advice to teachers and parents.

4. Governments and administrators often need information to guide their decision-making. Cronbach pointed out that information collection for practical decision-making, decision-oriented research, has several characteristics which distinguish it from pure scientific research. It is commissioned, has a time-limit, the second type of error being just as undesirable as the first, etc.

Our educational researchers are not trained to make decision-oriented studies; neither are research institutions decision-oriented. Users are neither trained nor advised to ask the right kind of question to enable effective decision-oriented studies.

There are two kinds of risks when decision-related research is commissioned without making the context clear. The obvious one is that the findings may be out of focus with the ideas of the decision-maker. The less obvious, but perhaps more dangerous one, is that the decision-maker can make an arbitrary selection of findings and interpretations to substantiate his desires. Methods, styles and ethics of decision-oriented studies should be established.

IV. Obstacles

An obvious obstacle which prevents research having a greater impact upon practice is the lack of communication between practitioners and researchers. Needs are not sufficiently communicated to researchers and research findings are not published in ways which are readily communicable to teachers and administrators. This is true of all types of research, but is especially so of knowledge-oriented studies.

Generally speaking, the main purpose of knowledge-oriented studies is to answer scientific questions. Inadequacies, lacunae, confusion and incongruities in our present-day knowledge are the problems on which knowledge-oriented researchers work. Often, they are not directly relevant to urgent decisions to be taken and to educational practice. Their main importance is that they contribute to strengthening the body of knowledge which can be referred to when making educational decisions.

Knowledge-oriented researchers address their reports to fellow researchers. They are often hard to understand if the reader does not have a research background. It is even harder to know exactly what they mean for educational practice. Good researchers usually know how to write without hiding behind technical jargon, but they can think and write better and faster if they can assume that the reader has a certain level of training. Use of a less technical terminology may limit productivity.

What is needed is an intermediary. Candidates for this job are researchers who work with teachers, teachers who participate in research, teacher trainers, teacher counsellors and editors of educational journals. In particular, good quality journals have a large role to play in better communication between researcher and user.

It is also important to set up a system of incentives which will motivate practitioners to participate in research, request the assistance of teacher counsellors, or subscribe to educational journals. In Japan a prerequisite for teaching is a certain familiarity with research findings and theories and examinations for promotion have an obvious incentive value.

The intrinsic motivation to know, however, comes from their experience that research has actually helped them in their own educational practice. In this respect, our research does show a weakness.

Perhaps the largest single obstacle to the greater impact of educational research is that as a discipline, it is so recent. There are many weak links in the conclusions reached by educational research.

Conflicting advice can be based upon a piece of research, thus it is important that both researchers and users are highly critical and cautious with the conclusions reached. Organized research, because of its so-called organization can become more misleading to educators than experience based intuition and, conversely, any advice can be supported by some research findings.

Generally speaking, given the present state of affairs, I would think twice before encouraging teachers and administrators to rely too much on research findings. Figures and conclusions may be valid in respect to the data obtained, but their generalizations and overall validity should be critically questioned before using them for practical purposes. In order to do this, users should have a certain familiarity with the processes of research itself, as well as with other reported findings. For this reason, I advocate the involvement of teachers and other users in research activities. This too, will facilitate communication between users and researchers.

In addition to the lack of maturity of the science of education, there is also the little-appreciated fact that it is culture-bound. What sometimes seems to be a very clear conclusion from the research fails to convince non-researchers, especially non-Western non-researchers. The analytic logic which constitutes the back-bone of contemporary scientific thinking is a subculture of Greco-European culture. A researcher, albeit of non-Western ethnic origin, is still formed by that subculture because of his training.

When culture-bound findings and logic are blindly applied to a deeply cultural phenomenon like education, even their very logical consistency may cause feelings of incongruity in the minds of non-Western users. There is a difficulty in refuting the evidence because the alternative logic has not been clearly identified, but there is the feeling that "something is not quite right". People become just silently unenthusiastic. In Unesco-sponsored research especially a profound and sympathetic consideration of endogenous ways of thinking is needed if they are to be truly accepted.

Who needs research?

Dr James Chandler
Director, IBE
Geneva

One might begin with a look at the particularity of the subject, by hypothesizing that education falls into a set of activities in which basic research is more likely to link directly to application than to a free and unconditional "search for truth". Imagine a research continuum with informatics at one end and pure mathematics at the other. It seems clear that educational research will fall closer to the former than the latter. This being the case, perhaps the title of the seminar might be a little recast (for discussion purposes) to read "Practice and research in education: strengthening links between practice and research aspects of the general educational process".

If we take it that purposeful human activity normally aims at improvement in relation to criteria such as the two implied in the third agenda item "(1) better relevance of education to the needs of economic, social and cultural development, and (2) increase in internal, efficiency", this slight reformulation to put primary emphasis on output would appear justified.

This, in turn, limits the scope of research under consideration, or at least opens the possibility of a scale of potential applicability of research, and hence one set of priorities to help with the question, "what kind of research ?" Prima facie, those disciplines prefaced by "educational" (educational economics and the like) would appear to respond to the hypothesis, but also to imply links to the general disciplines so indicated. What one does about as yet unspecialized areas such as political science or anthropology is another question.

Practice, as a term, needs some analysis as well. One supposes it to be, at base, concerned with structured learning activity, involving one or more learners (in a wide variety of combinations, ranging from self-instruction (teacher and learner are the same person) to simulating learning in which the role of learner and teacher in a group may shift rapidly for complex reasons. At this level "internal efficiency" becomes learning efficiency and links to pretty well-defined areas of research in educational psychology, learning theory, educational sociology and the like. Relevance, on the other hand, wears the mask of motivation, and the problem of individual and/or societal development surfaces once more.

The fact that both criteria become somewhat bent when one juxtaposes them to the actual learning process is significant. It suggests one possible source of confusion in the subject, namely that when teachers, parents and students leave "learning country" they become something else - planners, researchers, decision-makers, administrators, guidance givers, analysts, or whatever the situation calls for.

In such conditions (which admittedly can from time to time spill over into learning situations) the criteria become more comfortable since we begin to deal with the more manageable adjuvants to the ultimate learning process: policy, planning, administration, curriculum, and so on, where nearly all criteria are rooted in other than educational soil.

It may be well, therefore, to decide at an early point in discussions to centre attention on one or the other of these "practice" areas, or, if both are to be treated, to recognize that the problematics for each is quite different. The terms "macro- and micro-level" are somewhat misleading in this regard, unless one is talking about micro-planning, micro-management or some other part of the set of adjuvants to learning.

Obstacles: When we seek to identify obstacles to research impact on practice, we almost inevitably fall back into the user-producer syndrome, where something is wrong with the user: "Hell, I already don't teach as good as I know how!" or the producer, "Well, it's not really an interesting problem" or more likely both. Incentive of an extrinsic nature may help, but the root problem appears to be one of role, where research and practice drift further and further apart unless somehow forcibly brought together. Witness the growth of extra-mural research organizations and institutions dealing with educational matters, or the implacable tendency of educational evaluation to dissociate itself from the learning process except as an implement of mensuration at macro-levels of internal efficiency.

Assuming, however, some degree of receptivity of user and of commitment of the researcher to the improvement of practice through research, much else can go wrong. In the most general case, the communication lines are down. The researcher doesn't know the problem, and the practitioner can't identify the research resource which might help with the problem he owns. In many cases neither is at fault, since with the growing sophistication of social systems, and educational systems within them, problems are likely to be in constellation with others and require interdisciplinary approaches to solutions.

But clearly where there is evidence (and complaint) of information overload, as is increasingly true, the emphasis shifts to the respective needs of user and producer. It is important to take into account both sets of needs and to relate them. At policy- and macro-decision-making levels, users will be faced with the problem of informing themselves on Chinese metaphysics by having someone consult the encyclopedia on "China" and "metaphysics" and combine the knowledge so acquired - preferably in one standard page or less. The producer of research, on the other hand, is a specialist (or a group of associated specialists) who will be unlikely to be able to deal with all aspects of the user's problem, but must nevertheless know its scope and overall shape.

This argues a strong need for increased capacity to manage research in education, perhaps mutatis mutandis along lines of agricultural research management. This need in fact, has given rise in many countries to just such specialized institutions, of public, private, and parastatal character.

Here the world management is unusually critical. Administration of a body of researchers is not meant, much less direction. What is meant is skillful and well-planned orchestration of a set of user and producer factors over which the "manager" has varying and limited degrees of control. The manager's success is evaluated precisely in the degree to which research provides satisfactory answers to real problems, in such form (or forms) that the implementation of consequent decisions is assured some degree of success.

Modalities: Much depends on decisions and actions taken relative to research management resources and organization. Some principles, however, can be made out, however darkly. A certain flexibility in this regard is essential, both to maximize research potential, which inevitably marches to a somewhat different drum from practice, and to deal with such predictable human frailty as the tendency to over-react to partially unsuccessful experiment. Financial, demographic, political and even cultural changes have to be taken into account, as they affect policy formulation and the consequent shift in priorities and resources for the implementation of policy.

It may also be suggested that an holistic approach to strategy has perhaps greater chance of success than one too closely tied to a single aspect of the whole problem, e.g. a strategy for utilization of research results. For this reason, even if one gives primacy to practice (as representing what societies pay for, in whatever coin), it will be productive to look at policies, priorities, research, and practice as a gestalt, of which any part considered by itself is recognized to be subject to change when functioning as part of the whole.

This approach has consequences. Since each factor in this whole has (most usually) a different set of actors with different conceptions of role, any strategy which is based on the concept of a zero-sum game is not likely to yield much. On the contrary, if it is clear that all factors benefit by maximum adaptation to others, chances of success grow. Thus policy takes into account the motivations of practitioners and researchers. Researchers perceive that results which enhance implementation of policy and effectiveness of practitioners (or on the contrary, provide evidence to cause change in policy and practice) are likely to strengthen the value of research in the total equation. Practitioners perceive that application of understandable research results to real problems yield success which accords with priorities and policies.

A third principle is one of interdisciplinarity. A chronic plaint of research is that its results are ignored by policy-makers and practitioners alike, when decisions are reached. While there are complex reasons for this (suitability of form of results, dissemination failures, faulty problem identification), a very important one is that of the shifting sets of socio-political and cultural factors faced by both the macro-decision-maker and the practitioner at their respective levels. Hence highly-specialized research which either ignores other variables or assumes them away is almost inevitably doomed to distortion, misapplication or rejection unless related to equally rigorous analysis of the better part of the constellation of factors bearing on the problem.

Further action is subject, of course, to the limits of the possible. Nevertheless, the problem of relating policy, priority, planning, research and practice as part of a whole may be aided by re-examination of sector analyses, reform plans, and long-term and medium-term plans from a synthetic rather than an analytical stance. Linear approaches or even the classical horizontal-vertical matrix may well have proven to be misleading in regard to the subject under study. While for obvious reasons it is important that educational research retain its identity, some means for putting together interdisciplinary or intersectoral research resources is essential.

On the international scale, some useful steps could begin - not surprisingly - with the kind of information-sharing made possible by such forums as the colloquium and by existing as inchoate information networks. Particular attention could be paid to solutions of the research management kind (the USSR and Republic of Korea models spring to mind). To go somewhat further, one might learn a good deal by looking at approaches to similar problems in such fields as health and agriculture. The patterns for example of international agricultural research centres and their networking systems may well suggest different international dimensions of action which might be taken.

To sum up, the problem of relating practice and research is an important one, if one assumes that bringing the two together results in amelioration of the educational process. While both may require strengthening, one might posit that the best strategy is one of bringing existing resources into a more productive relationship, and that an essential component of such action is a fresh perception of the true role of each in so far as they are parts of the totality of the educational process.

Seven theses on the application of research findings in development programmes in the field of education and training

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German Foundation for
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The following seven theses have been criticized by colleagues at DSE and at the Federal Ministry for Economic Co-operation for being too general in nature and in no way innovative.

These criticisms are justified. As to the first, however, it should be noted that a differentiation according to:

subject-matter field,

nation and culture, and

field of application

should govern the practical application of the principles involved. Such differentiation would take account of the major differences found among individual countries as regards scientific infrastructure, information and documentation system, government attitude towards research, social system in general and its openness, readiness to co-operate, and attitude to the outside world in particular. The frame of reference is thus the individual issue.

It is also true that the above theses do not constitute anything new. Yet it is unfortunately no less true that in my particular field of interest little has been done so far towards solving existing problems and their topicality has thus not diminished.

To conclude, research programmes and the application of research findings should always be preceded by a critical investigation as to whether the subject of research is of real relevance to development policy requirements and of real interest to those potentially affected. Many difficulties would be eliminated if the selection of research topics were undertaken on the basis of partnership co-operation.

The seven theses are listed below.

1. Research promotion

Development programmes in the field of education and training often lack an appropriate scientific basis. Insufficient data is available on the local education and training system, educational policy objectives, and the rational underlying the priorities fixed in the search for assistance; furthermore, statistics on education and training are very often incomplete or out of date. Assistance should therefore focus initially on the establishment of a research infrastructure, at least in the LLDCs (e.g. advanced training for science graduate recruitment personnel).

2. Approach to partners

A large part of research on education and training both in and on developing countries is undertaken by foreign experts, yet only some of their findings are released to the country concerned. It would be more appropriate if all scientists and experts engaged in research were obliged to co-operate with local scientists and experts, use the local research facilities, release their findings and assist, where possible, in their dissemination.

3. Participation of those concerned

The planning and formulation of research objectives should be undertaken in co-operation with those groups and institutions which are subsequently to use the findings. This would ensure that these groups would support the research from the outset and take interest in applying the findings at a later date. It implies that greater investments must be made in the planning phase (funds for travel purposes, discussions, etc.).

4. Reporting

In the case of field research projects, technical terminology should be abandoned if possible by the planning stage and at the latest by the reporting stage in favour of the terminology and concepts familiar to those groups which are subsequently to apply the findings. Moreover, the findings should be presented in a concise, brief and appealing form. This will ensure that they are read with interest and find access to even work-laden administration officials.

5. Interdisciplinary co-operation

Educational research should pay greater attention than hitherto to the influence exerted on the educational system of a country by its politics, administration, economy and culture. Greater recourse should be had to the knowledge gained in disciplines such as political science, sociology, economics and anthropology in order to ensure exact analyses and practicable suggestions. It should be borne in mind that the value systems and yardsticks applied by scientists are frequently too own-culture-oriented to be of real value elsewhere.

6. Evaluation

The scheduling and funding of education projects should allow for an evaluation phase during which research findings can be discussed by all authorities concerned and the required political and administrative measures can be taken.

7. Regional and international exchange of experience

Greater importance should be accorded to the regional and international exchange of experience gained in the application of research findings in the education and training sector. Exemplary models should be publicized at international level.

Is there something wrong with the implementation of educational research?

Zsuzsa Fergé
Hungarian Academy of Sciences

1. Research - for whom?

There are many different approaches in "educational research", starting from various disciplines (pedagogy, psychology, economics, history, sociology, etc.) or moving at different levels of social reality (individual, group, structure, etc.). If a piece of research is good (whatever this means), it will certainly have relevance for some users at some point in time. Thus, for the purpose of this Conference, I would ask instead, which research is likely to be found relevant by those who are responsible for the "running" of education, including the implementation of educational innovations and reforms. Again, this responsibility is shared mainly by teachers and administrators (including decision-makers and planners). But, their responsibility is of a very different kind. Teachers are mainly concerned with what is going on within the class and perhaps within the school - and they have perhaps an impact on those processes. Administrators, in the wider sense, have the responsibility of the whole educational system. Both may be interested in all types of educational research, but the research they can use (implement) is of different kinds.

In what follows, I shall mainly be concerned with research which may or should have some relevance for administrators. I have to emphasize at the beginning that my experience and my interest is limited to a certain type of research in educational sociology. This, no doubt, limits the relevance of my experience.

2. Research - for what?

Administrators are, first and foremost, concerned with the good running and improvement of the educational system. But, what one sees as "improvement" depends on what one sees as good, or on where one wants to go. In other words, improvement is not a neutral word. It depends on the social goals one endorses tacitly or explicitly. It is, therefore, heavily loaded with social values. These values are derived, or emanate, from the social system of which the administrators form a part, on the one hand and, on the other, from the social position of the administrators within the system. Also, no doubt, they may be partly idiosyncratic - although for an inveterated sociologist even personal idiosyncracies in these matters are mainly explained by social factors. Thus, depending on these factors and their combination, a "good" or an "improved" school system may mean one which:

> promotes to the greatest possible extent economic goals, or contributes to the smooth running of the economy, or ensures a good fit between supply and demand on the labour market, or is working with the lowest costs, etc;
>
> promotes to the greatest possible extent the immediate well-being of children and possibly parents (and what "well-being" means is another controversial issue);
>
> promotes to the greatest possible extent the unfolding of personality, through ensuring maximum individual freedom to children, students, teachers and/or parents, including freedom of choice of schools, of studies, of curricula, etc;

promotes to the greatest possible extent a decrease in existing social inequalities,by redressing, possibly through affirmative action, inequalities at the start, and by trying to exert an impact on the social structures, by means of a less unequal "output" of the school;

or, one can think about improvement in many other terms.

It has been shown again and again that these objectives, or at least some of them, if not necessarily antithetical in the long term, are certainly conflicitng in the short run. This means, in other words, that the above goals correspond to varied, and often conflicting interests. Because of the conflicting nature of the goals, a piece of educational research, even if its declared aim is to "improve" the educational system, may serve mainly or exclusively one or the other of the above goals.

It only stands to reason that those researchers have a fair chance of becoming "relevant" for the administration which promote, or justify, the values endorsed by it, or at least by those of them who are most powerful in influencing the decision-making. It is almost useless to add that the decision-making process may also have a "backward" impact on the evaluation of research. Indeed, legitimation is a prime concern of each and every administration. Hence, research may be found relevant if it contributes, ex ante or ex post to the legitimation of an action being or already implemented. It does not follow that all other research is necessarily useless or irrelevant, even for the administration. I shall come back briefly on this point.

3. Whose research?

Researchers, just as administrators, are inserted in their society. There are, however, slight differences between them. For one, the administrators have, by and large, similar positions within the social structure. Also, they have to be committed, at least to some degree, to the status quo. The researchers' structural positions and functions are somewhat more heterogeneous, as may be their value-orientations and commitments. Their research will bear, necessarily the imprint of their respective commitments, whether tacitly or explicitly.

If research develops according to its own logic, there is a chance that many or most of the social groups and/or institutions with varied, often conflicting interests will "find" researchers endorsing their specific interests. Hence, the various pieces of research will serve, directly or indirectly, one or the other of the above-mentioned social goals (or at least will serve some much better than others).

Ideally, during the course of decision-making all the findings and all the arguments should be taken into consideration. A compromise should be worked out on this basis. Then, the possible alternatives and the reasons for the adoption or the rejection of the various elements of the alternatives could be spelt out. In this way, it would be clear why what was accepted and what was sacrificed in the name of what advantage. If this were to be the case, then one could say that all the research done has become relevant.

In reality, however, this ideal state of affairs is practically never reached for at least two reasons. One is a practical one: in more cases than one would care to admit the elements of the various proposals will just not mix. To take one insignificant issue: there are arguments, mainly of an economic nature, which militate for big schools. There are others, mainly psychological and pedagogical, which militate for small-size schools. Between these extremes, the logical compromise would be to build medium-size schools. This would not, however, satisfy anybody: the schools will be costly and bad for the children at the same time. A somewhat better compromise would be to create both types. This may at least satisfy some of the spokesmen of both proposals. It will none the less create tensions between the clientele of the different institutions, and will also lead to new kinds of inequalities and injustices. (A similar argument could be given for such issues as streaming vs mixed-ability classes, "open" or "closed" curricula etc.) Because no real compromise is conceivable, the cause endorsed by the more powerful party will probably be accepted.

This is the second reason. The ideal compromise presupposes that each proposition has an equal social force behind it, so that each of the interests has an equal weight in the final decision. However, in societies with a power hierarchy (corresponding by and large to a structural hierarchy) this cannot be the case. That is why I said that research closer to their own commitments will be found relevant by the administration, because these will be the most helpful in justifying or legitimating decisions (which sometimes would have been taken anyway).

There is, then, just one conclusion: if we want less waste and more profit from educational research, decision-makers or administrators should be more open to suggestions coming from different parts. And here, in order to avoid misunderstanding I have to add a confusing caveat.

As one of the body of researchers, I have my own committments. In school matters this means (to make a long story short) that I think the educational system should contribute as much as possible to render all kinds of knowledge accessible to practically everybody. This is because of a belief (justified or not) that more knowledge, spread with a less unequal distribution, is one of the means which could render individual and social life more meaningful, which could ensure a stronger hold over reality to those who are today heavily subjected to it, which would give a fuller sense to the now familiar word, participation. Because of the nature of social things, the arguments serving these aims are usually "harder" to hear. And, that is why I think that the confrontation of the various arguments cannot be an entirely neutral process. If it is partial in favour of the "weaker", I, for one, would not question its democratic character.

Whether more openness on the part of administrations, and more "partiality" in the above sense, depends only on the goodwill of those who participate in decision-making, or on other, more deeply-rooted social mechanisms is an issue which goes far beyond the scope of this short paper.

Communication from the World Confederation of Organizations of the Teaching Profession

Michel Gevrey
Member of the Executive Committee

The study of matters relating to the strengthening of links between research and practice in order to improve general education is one of the concerns of the organizations represented in the World Confederation of Organizations of the Teaching Profession.

WCOTP appreciates the multidisciplinary character given to the approach to these problems and the receptive attitude to the knowledge gained in all areas of research likely to contribute to an improvement in the effectiveness and relevance of general education.

The WCOTP organizations have often been confronted in their respective countries with the difficulty of establishing effective links between research and practice. They have looked into the nature of the relations between research and education and between research and practice and have scrutinized the objectives of research. They have also had to contend in various countries, with the fact that the political authorities are determined in some cases, to restrict educational research to the measuring or evaluating of the government's education policy, and in other cases, to disregard the work done in the field of research and experimentation and hence to impose reforms concerning general education which have serious consequences and are not introduced for reasons based on scientific data brought to light by research workers.

1st question

First of all there must be agreement concerning the meaning to be attached to the word "needs". Oversimplifying - so as to be able to identify practical lines of approach - it can be said that needs seem to arise at two levels.

First of all, there are immediate needs: these are felt by any educator who finds himself, from time to time, in an "educational situation" for which he has not been fully prepared by his training or experience. In this case, the educator often wants simply to be given a "recipe" which will enable him to cope with the situation.

At the second level, the needs seem more fundamental: the educator discovers that his teaching falls on deaf ears because the school structures are not suitable (timetables, content, curricula), or because his training has not taken sufficient account of changing ways of life (it is then a matter of teaching aids and methods), or because that training has not given him enough insight into the reality of school life, particularly when pupils have difficulties (lack of information concerning the process of growing up in the child and in the adolescent, biological rhythms, the causes of pupil wastage, and so on).

However, instead of seeking to define systems for dealing with these various aspects (centralized on non-centralized, theoretical or applied research, etc.), it seems more useful to point out that research should rest primarily on the two components of the tandem formed by the educator and the learner. School work rhythms, for example, take second place in relation to the biological rhythms of the child and the adolescent. Research topics are therefore proposed in pairs:

biological rhythms and school work rhythms;

psycho-affective development and pupil wastage;

the growing-up process in the child and monodisciplinary/interdisciplinary teaching;

the school population and the blueprint for education.

Finally, it would seem that the methodology of research is more important than - or at least antecedent to - the research which educational practitioners should be capable of initiating themselves, for it is they who are brought face to face with the inconsistencies that make it compulsory. The setting up of structures is only of secondary importance. In other words, what is needed is not so much basic or applied research as a kind of bedrock research.

2nd question

The main obstacles may first be analysed in terms of the fundamental dichotomy between research and practice.

Research, as viewed by practitioners, occupies a central position (both because it is centralized and because it performs a centralizing function) and stands high in the educational hierarchy, for it is often carried out far away from places where practical work is done. Where the practitioner is concerned, contact with research is made at the time of pre-service training, at best, or on the occasion of the publication of an administrative decision presented in the shape, for instance, of an educational reform in which practising educators have not been associated. Thus, at a first stage, a certain distance is established between research and practice, research being regarded as something which is read about and not acted upon, and this distance is sometimes accentuated by the esoteric nature of the language used by research workers.

Secondly, research is associated with theory (that is to say, with comprehensive, consistent and systematic conception of knowledge which enables man to rise above reality and so to understand it better, with science, which requires the different stages of a train of thought to be strictly linked together by hypothetico-deductive logic, with a questioning and critical attitude. Practice, on the contrary, is associated with homogeneity, a repetitive process, an empirical attitude, the proponents of which would understand neither the working method of research nor its questioning attitude. These two notions are asymmetrical. In extreme cases, however, research can exist without theory and practice can coexist with theorization.

A third explication lies in the status of research. In theory, research is autonomous in relation to the various forms of authority, but in fact it is dependent on the authorities (whether they be invested with political or economic power), for it is financed by them. Furthermore, the second-hand information gleaned by educators is provided by some higher authority, be it a ministry, a national institute, an institution of higher education, etc. Hence the image of research as an expression of the dominant ideology which is propagated by the servants of the established power structure.

If it is recognized that educators should initiate the research work, a structural difficulty arises which provides another type of explication. As educational systems are extremely hierarchized, the power to take decisions is vested in the high-level officials, and practising educators are usually responsible only for carrying out those decisions. It is not possible to define lines of research -

or even to conduct research activities - in places where practical work is done, and hence in educational establishments, without setting up an educational team which will assume certain responsibilities. As Jean FOUCAMBERT has said, "no descending scale exists to regulate the devolution of responsibility", and conflict with the authorities therefore appears to be inevitable.

3rd question

A remark must first be made about the wording of the question. While teachers and parents are undoubtedly practising educators, it would seem that researchers, decision-makers and planners are too often considered to belong to the same category, for in many cases research is financed and initiated by the authorities and then used - and even reprocessed for their own purposes - by those same authorities, whose objectives may not coincide with those of the "practising educators".

If there is to be better co-ordination between the various agents responsible for initiating or conducting research, a basic agreement must first be reached on the right to initiate research in the places where practical work is done (it being understood that this would not be an exclusive right) and on all its structural implications, namely:

- establishment of educational teams forming research units;
- definition of research topics by those teams;
- definition of the places where that research should be carried out (on a centralized or decentralized basis according to its nature);
- establishment of institutional links between research workers and practitioners through the preparation of a project.

These proposals call, of course, for a change in attitudes of mind. An effort to call into question the operation of educational structures and the mode of action of educators seem to be a fundamental necessity and involves the participation of the bodies responsible for pre-service and in-service teacher training. For it would be unobjective to pass over in silence the doubts at present entertained by educational practitioners regarding the importance of research, which they do not fully appreciate simply because it has not always been explained to them.

Continuing training (pre-service and in-service training) should make them aware of the need to co-operate with research workers.

WCOTP is following the work of the colloquium very attentively and is glad to be participating in its discussions. It intends to disseminate the conclusions of the colloquium as widely as possible among its members, and hopes, in this way, to help to reconcile research and practice in education, since such a reconciliation is bound to be in the interests of children, who are our constant concern.

Research and practice

Prof. Dr. M.L. van Herreweghe
President, WAER

As one of the main objectives of educational science is the study of how to attain optimal fulfilment of the human being, it is not only in practical situations that education has preoccupied itself with the realizations of men and humanity, but also even in research. And this, in the sense that both research and practice have to be considered as complementary. Daily practice shows the problems de vivo and is often unable to come up with the right answer and/or the motivation for the action. Research has to formulate them as a problem or postulate in a correct scientific way, has to make an analysis of the concrete situation, to develop the most adequate research methods and to be the guardian of objectivity, eventually creating possibilities for repeating the research or experiment in analogous situations, ensuring the value and applicability of the results and representing positive development of educational science.

A major obstacle is that of the insufficiency of exchange between those who make science and those who apply it.

History has shown us various ways of strengthening the links between research and practice in order to improve general education - from laboratory research, studying the relationship between sciences in general and the contribution of fundamental sciences to educational science (cf. Acts of the VIth International Congress of Educational Sciences, Paris, 1973, World Association of Educational Sciences WAER), stressing the relation of education and educational science with the totality of the world phenomenon and its content - over experimental centres (cf. e.a. Centre for Research in Education, Gent University, Belgium and its edition twice a year of Scientia Paedagogica Experimentalis), over experimental schools (cf. La Maison des Petits en Genève, Switzerland, Experimental Centre with a number of permanent subjects, University of Ghent-Belgium), the University Centre at Chicago, over a centralized organization taking responsibility for all the aspects of educational situations (cf. German Democratic Republic, with its supervisory system and education in school and society, developed under the leadership of educational scientists, but always implemented through teamwork between the practitioner and the research worker.

All these types of research are worthwhile because they all keep close contact between the practitioner and the researcher. What will be the result of this in the option taken up by decision-makers, planners, will depend upon the consideration they develop for real scientific research and the consideration they offer to their work.

Looking through the numerous volumes that appear regularly on research in education (cf. list attached, the informative publications such as "communicationes" in Scientia Peadagogica Experimentalis, the information gathering of ERIC Thesaurus of Descriptors and the National Assessment of Educational Programmes (NAEP) in the evaluation sector, only a small part of what is offered for reading in educational research) it seems that most educationalists are convinced that there must be strong co-operation between practitioners and research workers in order to determine the optimal situation in which research can be carried out on various subjects and the development of problems. What seems to have been missed out in research on the improvement of education is the real educator-research worker and the value that must be attributed to this rather idealistic viewpoint. That means that, as expressed by Wm. Reitz in a report on Self-Realisation through Education, Innovative Outreaches of Education in the USA, Research Methodologies (in Proceedings of the VIIth World Congress of the World Association of Educational Research, Gent, Belgium, July 1977), pp. 130-131.

> "Everywhere education seems to be in the clutches of economics, politics, religion, race and many other axiological conditions. If man cannot transgress beyond these bondages, his making will remain in Promethian chains, the great efforts that man has made to make himself are still handicapped by many insidious forces which seldom work for his own benefit".

Recent writings about the status of the science of education are disappointing. Broudy, reviewing progress in the field since John Dewey, does not see any improvement beyond the foundationalist's point of view. Whilst he is willing to accept modern technology in education, he rejects the fantastic success of the research and dissemination pattern found, for example, in American agriculture.

Piaget's writings, as presented by McKenna, seem more virile, having overcome obstacles in arriving at a more scientific status of the field. He seems to prefer taking developments in medicine as a model for education.

Four brief articles by Maccia, Poppe, Aims and Williams on the philosophy of educational science in "Viewpoints" make rather more technical contributions. Unfortunately, education is identified as teaching and learning with descriptors such as teacher, curriculum, learner and environment. A unique content, methodology, or body of accumulated knowledge of a science of education is not recognized.

From my own reflection, I feel that education must go beyond a psychologistic view of man, in the direction of a person-being as in Pfander's phenomenological study projects or as in Binder's medical and anthropological development.

Education should aim at progressive personalization of man. In "man" making "man" into "man" for the sake of "man" the explication and definition of the third and fourth "man" can never reach finite closure.

There still exists a rich documentation on didactics, methodology, evaluation, testing methods, research methods, psycho-pedagogical models etc., but the educational research that starts from real human problems - whilst man is not born as man, but has to become it, through education - is such a rapidly evolving problem, that we have to return to "studying the child, the youngster, the adult" in all their aspects as a human being, to study all the contributions which can be offered, not only through the positive, but also through the human sciences, to study the community in which people live and for which they have to be educated.

Here should be mentioned some main points highlighted by experts in education from universities and other centres of research in almost sixty countries, gathered at a World Congress at the University of Ghent to study factors underlying an objective of profound human significance: self-realization through education.

During their work, they noted that amongst the factors which determine world events, there are some which are worthy of humanity and which represent real values. They noted others which are less than worthy, in the sphere of economic and social life and especially in that of education. The essential points presented in the various reports are as follows:

1. All human beings have potentialities which should be developed to an optimum degree both for the sake of the individuals themselves and for the sake of

progress of society. The environment may or may not help the development of these potentialities. It is the responsibility of society to develop conditions which will enable the individual to achieve self-realization.

2. There is complete agreement that self-realization is one of the most important questions throughout the world. The Congress made it possible to discover some points on which all were agreed and others which, approached from different points of view, show differences of opinion.

3. Self-realization is a very complex problem which involves many conditions and which is affected by very diverse influences. We agree in affirming that education is one of the most important factors for the realization of the individual personality.

4. Being a World Association for the Advancement of Educational Research and having as our aim to give special emphasis to scientific research, we note that the problems which confront all educators and teachers in the realization of personality are manifold.

As yet, we do not have full insight into these problems; educational research in relation to the problem of self-realization has shown itself as of major importance.

Therefore, we recommend strongly that those who are carrying out research in this field should receive the help required for their work, so that the appropriate material, psychological and emotional conditions may be ensured to enable all individuals to achieve self-realization.

Added list of publications

American Educational Research Journal (Washington)

British Journal of Educational Studies (London)

British Journal of Educational Technology (London)

British Journal of Teacher Education

Le courier de la recherche pédagogique (Paris)

Documentatieblad. Ministerie van onderwijs en wetenschappen ('s Gravenhage)

Documentation et information pédagogiques. Bulletin du Bureau international d'éducation

Education in Japan (Hiroshima)

Educational Research Newsletter

Educational Researcher (New York)

Educational Researcher Magazine (Washington)

International Review of Education. Revue international de pédagogie. Internationale Zeitschrift für Erziehungswissenschaft ('s Gravenhage)

Internationale Zeitschrift für Erziehungswissenschaft. Revue international de pédagogie. International Review of Education ('s Gravenhage)

Journal of Experimental Education. Ann Arbor

Jyväskylä studies in education and social research (Jyväskylä)

Literatuur documentatie onderwijsresearch

Navorsingsbulletin. Research bulletin (Pretoria)

La nouvelle revue pédagogique (Paris)

Pedagogische Bijdragen voor het technisch onderwijs (Leuven)

Pedagogische Periodiek. Christene School

Perceptual and motor skills (Missoula)

Recherches pédagogiques (Paris)

Research bulletin. Institute of Education, University of Helsinki

Revue Suisse de Psychologie pure et appliqué. Schweizerische Zeitschrift für Psychologie und Ihre Anwendungen (Bern)

Scandinavian Journal of Educational Research (Oslo)

Schweizer Erziehungs-Rundschau (Zürich)

The selection of modern educational research topics and their relevance to practical educational needs

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The criteria for selecting research topics in education, educational psychology and developmental physiology are the practical needs of education and training, the need to resolve problems arising in the operation of the educational system, and long-range objectives in the field of education and training.

The current and future needs of practical education are identified by research organizations through analysis of the work of educational institutions and through study of the direct and indirect indicators of their performance (the press, correspondence and the documentation of educational authorities and other establishments or agencies). Increasing use is made of the system whereby the Ministry of Education of the USSR, or those of the Union Republics, commission research from the USSR Academy of Pedagogical Sciences, republican educational research institutes or other research establishments. Research assignments concerning ways of achieving long-range objectives derive from Communist Party and state directives defining the aims of the socio-economic and cultural development of Soviet society at the current stage of the construction of communism. Here, due account must also be taken of the role of educational research itself in forecasting the development of the national educational system and of educational science.

From past experience it is known that of the research undertaken to meet the needs of practical educators, the greatest significance attaches to that concerned with problems of educational content and methods. The solution of these problems is, in turn, inseparably linked with the task of attuning both content and methods to the demands of scientific and technological progress; of providing the requisites for lifelong education ("learning to learn") including higher education; and of optimizing the intellectual and physical load on the pupil.

The contemporary Soviet school curriculum contains a body of learning which provides each schoolchild with a high level of education and adequate opportunities to identify, establish and develop his or her individual interests and potential. In recent years, the curricula for all the primary, intermediate and senior classes of general schools in the USSR have been extensively revised and remodelled. The main thrust of this process has been to raise the level of theory in the educational content and to attune it more closely to the achievements of modern science. This approach has led, as a rule, to an increase in the volume and complexity of subject-matter, and this tendency has been particularly marked in mathematics and the natural sciences. Since no extra classroom time was available, ways had to be found of overcoming the consequent disproportion between the volume of subject-matter and the opportunities for learning it.

One way of overcoming this contradiction was to change the structure of educational subjects and to identify more exactly the key concepts in the light of which the content of education is unfolded. This was facilitated by the rejection of the spiral method which had appeared advantageous until the introduction of general secondary education. Linear programme structuring of curricula is not only time-saving, but also provides a better logical sequence of educational content. At the same time, a new and more rational system of grading subject-matter has been drawn up. Solution of the problem of subject articulations could also go a long way towards overcoming this contradiction.

Because of the revolution in science and technology, we are faced with an explosive development of science and the rapid application of its achievements to industry. In this connection, educational science has the difficult problem of selecting the most important information and facts concerning modern science, technology and art for study in school. Here it is important to use a scientific approach for determining the optimum volume of knowledge of the fundamental principles of science and its mobile boundaries, and to formulate criteria for ridding curricula and textbooks of obsolete material and enriching them with new scientific facts. The optional studies included in the curriculum for the 7th-10th (or 11th) classes can play an important part in dealing with this problem.

One of the chief principles in Soviet educational theory and practice is that of polytechnization. It is our contention that this can be realized all the more effectively if during the learning process theoretical studies are complemented by a practical introduction to the more important technological techniques and designs used in industry, agriculture and service industries. The first step in this process is practical work in the laboratory. This is why the transition to the special study-room system effected in recent years was an essential condition for strengthening the polytechnical bases of education. Excursions to factories and works are very useful for teaching pupils about industry. However, the most important factor in polytechnical education is the organization of manual training in close conjunction with study of the fundamental principles of science. It also plays an important part in character training.

A serious problem whose solution is directly linked with the improvement of educational content and techniques is the preparation of pupils in general secondary schools, vocational schools and specialized secondary educational establishments (technical colleges and high schools) for study in higher educational establishments. Important constraints here are the varied nature of higher educational establishments as compared with the uniformity of the secondary education system, the discrepancy between the numbers of secondary-school leavers and the number of places available for higher education, and higher educational entrance requirements that are frequently above the capacity of schools. The solution of these problems is to be found in joint research by educationists, psychologists, sociologists and others in the fields of both secondary and higher education.

It is universally acknowledged that any specialist soon loses his skills unless he keeps abreast of the latest developments in science and technology and updates his knowledge. Hence the need for continuous, lifelong education. The task of educational science is therefore to help the school to teach the pupil how to learn and to find more efficient forms of post-school education. The extent to which this task is fulfilled will largely determine future progress in raising the general standard of culture of socialist society which is one of the main prerequisites for building communism.

To foster in young people a desire to continue learning throughout life is now one of the main tasks of the school. But, if that desire is to be maintained and grow, then young people must be trained in self-education.

What particular kind of teaching methods need to be employed to prepare pupils for lifelong postschool education and self-education and develop in them the habit of supplementing their knowledge as well as the ability to come to terms easily with the flow of new information?

The findings of educational science and practical experience in schools indicate that, in order to achieve this objective, it is necessary, firstly, to further develop methods of inculcating habits of mental and physical work, and, secondly, to cultivate the demand for knowledge and an interest in learning. That is why teaching the techniques of working with books, newspapers and reference material, and the analysis of study techniques that helps pupils to understand the skills required for purposeful activities, are becoming part and parcel of modern classroom practice. The role of motivation in learning and in the conduct of schoolchildren is well known, and the development of proper motivation is another vital practical problem.

The need to improve educational methods is dictated by yet another consideration. On the basis of the results of research in the fields of developmental physiology and psychology, educationists consider that, to be effective, the teaching process needs to be conducted in such a way that the subject-matter is graspable by the pupils but at the same time presents a sufficiently high level of difficulty. This heightens the pupils' interest in learning and makes the learning process more productive. However, the teacher needs to be properly trained in this direction and be skilled in the use of the most effective educational methods and aids. Otherwise, the pupil inevitably loses interest in learning, tires rapidly and consequently becomes overstressed.

In an advanced socialist society, in-school education provides training in communism and is distinguished above all by the scientific objectivity of its content and by its ideological trend. The entire system of education and training is aimed at cultivating in young people a dialectico-materialist outlook and a scientific understanding of the laws of development, nature, society and the human mind, demonstrating to them the active part people have to play in the development of society and convincing them of the advantages of socialism and communism over the capitalist system and of the ultimate total victory of communism. Just as in the course of study of the natural sciences pupils develop a dialectico-materialist outlook on nature and mankind, so from education in the humanities they actively assimilate the most important socio-political concepts and ideas and acquire the capacity for social analysis and for assessing phenomena in the life of society. Through their introduction to the practical work of building communism and their active involvement in socio-political activity and socially useful work, young people's social experience is enriched, their sense of responsibility towards the community and their fellowmen is increased and their self-confidence is enhanced.

Our educationists and psychologists have reached the conclusion that the efficiency of education and training cannot be increased merely by improving on traditional methods. It was not just by chance that the report of the CPSU Central Committee to the XXVth party congress included among its objectives the attuning of educational techniques to modern requirements. The new content of education, the inclusion of the latest scientific and technological developments in educational disciplines and the use of modern technical teaching aids all make it necessary for us to reorganize the educational process, to expand research on special methods and to make a careful study of the methods followed in foreign schools. The systematic improvement of educational methods is now indeed one of the principal requirements for improving the performance of general educational schools.

Educational Research Institutes in Japan

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1. Overall state of educational research in Japan

There are 960 institutions and organizations involved in research, survey and in-service training in education. The following table shows their distribution by types and by those having established them.

Table 1 shows that there are more than 500 independent institutions for educational research. They are given different names by those establishing them, such as educational research institutes, educational centres,etc. More than 50 research institutes are attached to universities. Sixty research divisions of administrative agencies and 330 universities and junior colleges which have faculties or educational sections are also part of research institutions in education. Finally, more than 220 academic societies or organizations for education are also working on research.

I do not think I need to explain the activities of educational faculties or sections in universities. Many of them are for pre-service training of teachers of elementary and lower secondary schools. Some are for pedagogical studies. Institutions for educational research attached to universities are by and large specialized in a specific field of study such as educational technology, information processing, special education etc., but their fundamental nature is more or less the same as other faculties or educational sections in universities.

I assume that the functions of educational administration agencies in research and survey are commonly understood without explanation. Collection and processing of information, materials and statistics needed for educational administration and policies, grasp of educational activities, confirmation and evaluation of outcomes of administrative measures and policies etc., are covered by the research and survey activities of administrative agencies. They serve the immediate needs of administration.

Besides these, there are more than 500 independant educational research institutions throughout the country, with either public or private status. It may be necessary to explain their functions and activities.

First of all, there are research institutions run by the national government. There are four institutions in addition to the NIER: the National Institute for Special Education, the National Training Institute for Social Education, the National Centre for University Entrance Examinations and the Development Centre for Broadcasting Education. NISE, National Institute for Special Education, has a school attached to it to provide education for mentally or physically handicapped children. The institute conducts research on education for the blind and deaf and for the mentally retarded, physically handicapped, emotionally disturbed, multiply handicapped children and those who are physically weak. It also organizes professional and technical in-service training courses for staff members in the field of special education.

The National Training Institute for Social Education provides in-service training courses, not only for social education officials within educational administration agencies, but also for leaders of social education in the private sector.

The National Centre for University Entrance Examinations deals with preparation of test papers for a joint achievement test which is the first stage of the entrance examination for national and public universities. It also marks the test answers. It was established in 1977. The Development Centre for Broadcasting Education conducts studies on broadcasting, programme development and instructional methods by means of broadcasts to contribute to the development of university education through these methods.

NIER's goals are: to conduct comprehensive and practical research on educational thinking, comparative education, educational systems, content and methods of teaching,etc. It is carrying out research in close collaboration with various institutions inside and outside Japan.

Educational research institutions established by the national government pursue, as mentioned above, individual responsibilities in specific fields of educational research. Similarly, the educational research institutions established by prefectural or municipal boards of education are assigned individual missions. There are many institutions engaged in research within a specific field of education such as science education, education for information processing, agricultural education,etc., but the majority of them deal with general educational activities with particular emphasis on the school.

I should like to draw your attention to the fact that there are 79 educational research institutes administered by 47 prefectural authorities and about 400 educational research institutes maintained by municipal authorities the number of which reaches nearly 3,000. The major task of these institutions is to provide assistance and in-service training for school-teachers, provide educational counselling services for the public and to conduct research and surveys as a basis on which to implement the two above-mentioned activities. Some institutions are trying to provide - in addition to assistance in development of teaching materials for school-teachers - assistance to widen understanding of the natural environment of the community, not only for children but also for adults. Thus, such institutions are trying to improve the educational environment of the whole community.

The activities of these local educational research institutions are appreciated. They contribute, with school authorities and teachers, to the enrichment of educational standards in the country, by means of improving daily educational activities, instructional methods and upgrading the quality of teaching.

Many of these educational research institutes established by prefectural or municipal authorities have more than 30 years' experience. This is due to the fact that many local authorities, at the time of educational reform soon after the war, established an independent system for educational research under their jurisdiction in order to collect educational information inside and outside the region and to disseminate ideas, contents and methods of new education to classroom teachers.

These institutes formed a voluntary nationwide network with NIER at its core, called the National Federation of Educational Research Institutes of Japan. Through this network, local institutes conduct joint co-operative research projects and promote exchange of results. There were only 27 member organizations at the beginning, but over the past 30 years more than 200 institutions have become affiliated with the Federation. So far, it has conducted 16 nationwide research projects including those of "Study on Improvement of Instructional Activities", "Study on Education and Attitudes of Working Youth", "Study on Family and Children", "Study for Systematization of Education", "Study on Classroom Activities in Relation to Development of Learning Abilities" etc.; in all, 28 reports have been published by the Federation.

I do not have enough information on the status of educational research in other countries, but I think that a special characteristic of the Japanese educational research system, apart from the educational research activities carried out in Universities, is that so many independent research institutions are in operation and conducting practical educational research projects and in-service training programmes for educational staff.

2. Dissemination and utilization of results of educational research and co-operation amongst research organizations

Research results are usually made public in the form of a report. In addition, seminars and study meetings of various types give researchers an opportunity to present what they have learned through research. They are also invited to participate in various public and private councils, committees and meetings and are given opportunities to submit ideas derived from outcomes of their research. In these ways, research results penetrate the field of education and can be used for the formulation of educational policy. Direct and immediate effects of educational research cannot be expected, but through better understanding of the outcomes of research by educators concerned, it can be expected that an atmosphere of acceptance of the outcomes will be created and, consequently, research results will influence greatly the development of education.

Table No. 2 shows the publications of research activities undertaken by various educational research institutes during the fiscal year 1975.

In addition, during the same fiscal year, 17 academic educational circles issued 297 publications and 50 organizations related to school education issued 228 publications. From this data, it can be assumed that more than 3,000 publications were published by educational research institutions and organizations during the year.

The National Federation of Educational Research Institutes of Japan is also playing an important role in the dissemination of research results. The exchange of results is encouraged amongst member organizations which ensures utilization and diffusion of research results at the national level.

At the same time, there is international dissemination of research findings and co-operation amongst research institutions.

Asian countries have developed an Asian Programme of Educational Innovation for Development, "APEID" within the framework of Unesco activities. One of its major programme activities is to strengthen exchange of information and experiences in educational innovation among member countries. NIER is one of its Associated Centres and organizes three or four regional workshops and seminars per year. In this way, it helps to improve curriculum development, develop science education, promote moral education and strengthen educational research activities in the Asian Region. The exchange of information in these areas is one of the outstanding features of the programme. Last June, in commemoration of its thirtieth anniversary, NIER organized a regional seminar on educational research related to educational reform, inviting one outstanding leader from each Unesco Member State in Asia and Oceania. This was a joint venture with Unesco.

In addition to Unesco, OECD is also promoting international educational co-operative projects in which the NIER participates. IEA, International Association for the Evaluation of Educational Achievement, is a well-known organization producing remarkable results by means of its international surveys. NIER is its Japanese national centre and many new ideas and information are provided through this IEA network.

In July 1980, the Fourth World Congress of the Comparative Education Societies was organized in Tokyo. Dr Masunori Hiratsuka, previously Director-General of NIER, was Chairman of the World Council of Comparative Education Societies and NIER staff played a vital role in organizing the Congress. There were nearly three hundred participants from aboad and a lively exchange of views and opinions on the main congress theme "Tradition and Innovation in Education" was observed.

In August of this year, the International Association of Universities (IAU), a Unesco non-governmental organization, organized its seventh General Assembly in Manilla (Philippines). NIER participated in this Assembly as an observer. Information on higher education is being obtained through IAU.

Research information and exchange of experiences in education obtained through Unesco's Institute of Education in Hamburg and the European Centre for Higher Education in Bucharest is of great benefit and further development of their activities would be desirable.

3. Research and practice

Needless to say, educational research has to be both nationally and internationally relevant to educational development. Research results give meaningful information on education and should be utilized for further promotion of educational activities. Bearing this in mind, several considerations for planning and implementation of educational research emerge.

First of all, research and surveys should be based upon facts and data, and procedures scientific enough to resist any methodological criticism.

The researcher should possess deep insight of educational affairs and the future of educational development so that he or she does not misjudge the selection of research topics.

For educational research, a certain period of time is needed from the planning and implementation stage. Educational policy decision-making needs to be made as quickly as possible. It is imperative, therefore, that both educational researchers and policy makers have as wide an overview as possible of the trends in education for the future.

Generally speaking, policy-makers providing funds for research and practitioners concerned with the day-to-day running of educational programmes, tend to acquire concrete results of research in a relatively short time. This may be inevitable but such short-sighted expectations of educational research may hamper the development of more relevant research activities.

On the other hand, it may be useful to point out that researchers should select long-term research themes. If not, they will only follow along the lines of educational policy decisions and will consequently produce no new relevant research. To avoid this, it is strongly advised that researchers acquire deeper understanding and wider knowledge of current educational issues. This is why local and international comparative study of education is important.

Those engaged in educational research activities are always requested to develop something specific. However, the researcher should also do his best to improve general standards of educational research by means of co-operating with other researchers both at a national and international level.

The global society is shrinking yearly. Education was once considered as a local or national affair, but nowadays educational activities in all countries are examined within the context of joint efforts of international co-operation. Educational activities and educational research in one specific country are now also being considered as useful experiences for other countries and a flow of experiences such as this is needed at the international level. I believe we have entered an era where close co-operation of educationists, going beyond the national boundaries, is needed. This will be, I am sure, an ever developing, but never diminishing fact.

We are entering into a new epoch in the world today, as brothers of the global society. We expect further prosperity and improved welfare of mankind through education. Educational research should also move in this direction at an international level.

Table 1. Number of institutions and organizations for educational research, 1978

Type	Establisher				
	National	Prefectural	Municipal	Private	Total
A. Institutions	121	144	403	292	960
(1) Independent institute or education centres	5	79	394	38	516
(2) Establishments attached to universities or their faculties	42	-	-	12	54
(3) Divisions of administrative agencies	4	47	9	-	60
(4) Universities with faculties or sections of education	70	4	-	58	132
(5) Junior colleges with sections of education	-	14	-	184	198
B. Organizations	-	-	-	221	221
(1) Academic societies	-	-	-	36	36
(2) Organizations for school education	-	-	-	140	140
(3) Organizations for social education	-	-	-	45	45

Table 2. Average number of publications per institution and its distribution by area of study

	Number of Publications	Total	History of Education	School Education	Social Education	Conditions for Education	Others
		%	%	%	%	%	%
Independent Institutes/Centres:							
National	17.0	100	10.0	77.5	-	-	12.5
Prefectural	6.7	100	1.2	89.9	2.0	3.3	3.6
Municipal	3.7	100	1.3	84.4	2.0	4.5	8.0
Private	6.6	100	3.4	89.0	-	6.8	0.8
Establishment Attached to Universities or their Faculties:							
National	5.3	100	0.6	76.0	2.5	-	20.9
Private	2.6	100	16.0	80.0	4.0	-	-
Divisions or Sections within Administrative Agencies:							
Ministry of Education	5.0	100	-	-	-	80.0	20.0
Boards of Education	3.0	100	2.6	17.8	4.0	60.0	15.6

Research activities and educational practice in the People's Republic of Bulgaria

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INTRODUCTION

The link between education and educational practice and the application of research findings is an important problem for educational science and for all the other sciences on which it draws.

The links between research, educational science and educational practice are complex. Dialectic by nature, they evolve in two directions, at different levels.

(a) Educational science serves educational practice, but at the same time its roots and the factors influencing its development are found in educational practice (existing contradictions, needs, problems).

(b) The most effective ways of improving educational practice are as follows: (i) to study positive educational experience and promote its general extension; (ii) to study the existing situation regarding general practice; (iii) to study the needs of society, its development processes, etc.

(c) Through educational science a large number of sciences such as psychology, physiology, philosophy, etc., which are closely linked to education exercise an influence on educational practice, for which they provide the essential methodological basis.

(d) Being a complex science and a system of scientific knowledge, educational science serves educational practice as a whole, covering all its fields, lines of approach, institutions and specialists working on educational problems.

All these factors determine not only the variety of scientific research and its functional characteristics, but also the means whereby its findings are put into practice.

1. Research on education is intended, first and foremost, to serve instructional and educational practice. To that end, it is primarily designed to provide guidance for the Ministry of National Education, which is the body mainly responsible for organizing research activities, and for all the specialists - administrators, inspectors, heads of schools, teachers - directly involved in education, as well as for partents and other interested social groups. Obviously, educational research is largely aimed at the promotion of education itself. In this case, research has a basic and theoretical character and seeks to elucidate certain important methodological problems, identify laws and new phenomena specifically affecting education and improve the education and overall development of pupils. It has a bearing on the formulation of new theories regarding the objectives of education, educational content and textbooks, on the development of the methodology of modern educational research, etc. To this kind of research might also be added educational-historical research and research in comparative education conducted mainly by researchers working in the field of education. Such research extends over a longer period (from 2 to 5 years) and is usually of a collective and complex nature. In some cases, it may result in the publication of an individual monograph, which sets out general conclusions drawn from personal experience gained in a particular field, over a period of many years. This is true of certain works that have already been published or are in press, including the following: "Methodological foundations of

pedagogy", written by a team directed by the academician Sava Ganovsky; "History of education and educational thought in Bulgaria", produced by a group of writers under the direction of Professor Jetcho Atanassov; "Didactics", etc. Other works are concerned with practical topics - the celebration of an anniversary or a jubilee (for instance "Lenin and education"), etc.

A relatively far larger share falls to experimental and applied research, particularly when the education system is going through a period of transformation involving sweeping reforms, as is the case in the People's Republic of Bulgaria at the present time. Such research is mainly centred on the formulation of a complex system of goals for the new polytechnic secondary school, the development of planning and a new curriculum, the preparation of modern textbooks, the establishment of centres for teaching and illustrative materials, and the difinition of modern requirements to be met by an effective system for organizing the tasks of inspection and education (technical teaching methods and equipment). Measures for meeting these requirements are planned and introduced into educational practice at the request of the public authorities. Their implementation is usually supervised by the Ministry of National Education. Thus, for instance, at the present time work is being done in Bulgaria, on the basis of short-term programmes, with a view to preparing an educational plan and projects for new curricula, experimental textbooks and educational aids for pupils from the first to the third grade of primary school, for the first grade now comprises children of 6 years of age whereas hitherto, primary education began at the age of 7. Another group of researchers is working on a new conception of educational content for secondary education, which will serve as a basis for the establishment of educational documentation for pupils from the fourth to the ninth grade. This research is characterized by the fact that it can only be carried out with the co-operation of a great number of specialists - researchers and practitioners in various disciplines and specialities such as psychologists, physiologists, etc. When new curricula and documentation have been finalized they are tried out for one to two years in experimental schools (this experiment is called a "pilot test"). It is at this stage that close links are established between researchers, specialists from the institute for in-service teacher training and the teachers themselves. At the same time as the pilot test, many parallel experiments are conducted when the new curricula and documentation are widely introduced into schools. This research, lasting one year, is carried out for each level at which the new curriculum is being introduced. This year, for instance, a survey will be made of the effectiveness of teaching for the eighth grade. This work, which calls for the co-operation of a large number of researchers (30-40), involves very complex studies. They relate to matters of health and hygiene, the psychological development of pupils, their knowledge, faculties, abilities, opinions, aspirations, interests and needs. Research of this kind is broadly representative. The findings are set out in reports which are submitted to the Ministry of National Education and contain a number of recommendations regarding the improvement of teaching materials, the qualifications of teachers, the functions of administrators, etc.

A large share falls to research on specific problems of departments responsible for a particular field of study. This research is put in hand after agreements have been concluded between the director of the department in question and the relevant research unit. In this case, the characteristic feature of the research lies in the fact that the efforts are focused on the modification of practice through the acquisition of positive experience on the basis of a particular scientific conception of both the dissemination and the application of that experience in educational practice. This research is usually of short duration and ends with the organization of a scientific conference at which the research findings are set out in a comprehensive report prepared by the scientific director of the research group and in communications written by the various researchers on points relating to concrete practice and cases illustrating what has been achieved.

A great deal of applied research is slanted towards the preparation of textbooks, educational aids, technical teaching equipment of a new type and towards the establishment of methodologies for the teaching of a particular discipline for the educational work system, etc. This is generally the kind of research that is most closely and most concretely linked to educational practice, as is evidenced by the very large editions of the publications to which it gives rise.

The study and general extension of positive educational experience occupies a special place in educational research. This is a specific kind of research whose purpose is to discover new trends and the first signs of innovations in educational practice. Sometimes the general extension of such experience is due to the practising teacher himself. We can point to the brilliant examples of the great Soviet educationists Makarenko and Souholinsky.

2. The greatest difficulty besetting educational research lies in the complex nature of the subject studied. No matter what problem is tackled in this field, the effectiveness of the work is always demonstrated (and this is particularly true in the case of empirically conducted experimental research) by individual changes that occur in the pupil, but it is difficult to discern these changes and even more difficult to measure them in terms of established units of measure.

Another considerable difficulty which is just as important lies in our inadequate knowledge of various psychological, physiological, social and other such phenomena and processes.

The changes that have occurred in education as a result of the dynamics of the socio-economic and cultural development of society, the scientific and technological revolution and the evolution of the contemporary pupil's status represent a particularly serious obstacle to research on long-term scientific programmes. The same factors also account for the rapid obsolescence of the findings of scientific research in education. For example, the problem of educational content is a permanent theme of scientific research and has to be regularly reviewed. All these reasons explain, to a large extent, why educational science has failed to keep pace with the development of society and its growing needs.

Further difficulties stem from the inadequacy of the effort to devise and work out in detail a complex methodology for educational research.

The great variety of research topics should be regarded as a drawback. The same remark applies to unrealistic planning, which means that there is a lack of harmony between, on the one hand, the complexity and content of a topic and, on the other hand, the time required for its preparation and the material and human resources available for that purpose.

Too little has been done to put a complex methodology into application when it has been put to the test; the findings of the complex research considered particularly necessary at the present time are not assimilated and are not always acted upon. Sometimes, for various reasons, research methods are abandoned in favour of descriptive and traditional methods when the time comes to deal with problems.

Not enough use is made of existing information concerning research findings, discoveries and innovations achieved both in Bulgaria and in other countries.

Furthermore, research concerning education and the findings of such research generally remain circumscribed within the limits of a particular country.

The arrangements made for international co-operation in the matter of joint studies are far from satisfactory. The isolated attempts made in this field are episodic, joint studies of this kind are not yet covered by an appropriate system, and no suitable style of work has yet been found for them although they have proved effective.

3. The links between researchers, decision-makers and planners working in the field of education, teachers and parents assume different forms. On the one hand, researchers study the needs of educational practice by means of surveys, observations, expert assessments, etc. On the other hand, they use this social potential in their capacity as experts, in accordance with the requirements of the problem studied, and in their capacity as consumers of the findings of that research. Often teachers, heads of schools, inspectors, etc., play an active role in research by undertaking its practical application.

The importance of a completed study is indicated by the degree to which it is possible to apply its conclusions in general educational practice. Indeed, practice provides a criterion for judging the importance of a given study. The findings obtained are put into effect through the most varied ways and means. In some cases, the findings are set out in documents and directives issued by the Ministry of National Education (educational planning and curricula, textbooks, etc.) while in other cases they are reflected in the content of prescriptive material (methodological circulars, instructions, decrees, etc.) or in the different forms of education and self-instruction (courses, seminars, lectures, workshops, articles).

Generally speaking, the means whereby the findings of educational research are put into practice may be divided into four groups: (a) the production of printed material; (b) lectures, courses, schools; (c) practical work with creative teachers, inspectors and other senior staff with scientific qualifications (specialists providing scientific guidance for the preparation of a positive experiment, for the writing of essays, etc.); (d) participation in the advisory committees of the publishing house specializing in the needs of education ("Narodna prosveta") and in the work of the editorial board of an educational journal (sub-editing, the compiling of miscellanies, etc.). The priority of one form as compared with another is determined by the nature of the problem studied, by practical social needs and by the ultimate purpose of the research findings.

I shall dwell briefly on each of the above-mentioned means of promoting the practical application of the findings of the research which is carried out.

(a) There is a wide variety of printed material. Articles play the most operational role. Every year a scientific researcher must plan and carry out work likely to yield findings that can serve as a basis for the preparation of 3 to 5 articles. These articles may be conceptual (because they set out the basic concept and main ideas underlying a particular piece of research), programmatic or directive (because they describe trends, shed light on tasks, provide guidance derived from the various party and state documents concerned with education and also ensuing from the needs of socio-economic development and scientific and technological progress), designed to popularize scientific work (because they aim to inform the general public about the approaches, forms and methods which are used to good effect during the process of empirical research), or they may be general articles, analyses and criticisms of research conducted in Bulgaria and in other countries, etc. These articles are primarily intended for teachers and are published in specialized educational journals. The mass circulation newspapers often contain explanatory articles concerning a new document, for instance on school curricula and textbooks, etc., theses, reports or decisions adopted at forums organized by the party and the state.

The material published in the specialized bulletin of the research institute is primarily intended for researchers and for teachers with a confirmed interest in research. It usually consists of short communications on certain aspects of current educational research.

Books deal mainly with more comprehensive research and are of a monographic nature. They are intended both for researchers and for educators in general. Methodologies and methodological guides for the teaching of a particular subject which are specifically designed for teachers represent another kind of educational publication. Mention may be made in this context of compendia of studies and articles (both theoretical and empirical). These compendia generally centre on a particular theme (for instance "Independence and activities of pupils", "A system of work aimed at the development of pupils' capacity for written expression").

The textbooks designed for pupils and teachers exercise a considerable influence, for it is compulsory to use them in educational practice. For this reason their preparation and experimentation, as well as their continual improvement, are subject to increasingly stringent requirements. These textbooks are usually the fruit of research projects conducted by a scientific adviser who is in charge of the preparatory work and is responsible for planning their subject-matter and for using the experience gained by the creative teachers who belong to the team of writers collaborating in the production of the textbook.

(b) Lectures on educational theory and practice and seminars for teachers are devoted entirely to the application of research findings in educational practice. They precede, accompany or conclude the acquisition and general extension of positive experience regarding the problems studied and represent a stage in the application of the knowledge gained in this field.

(c) I should like to draw special attention to the practical work done with individual creative practitioners. This work is very difficult but is a highly effective way of achieving the aim of disseminating ideas and scientific theories, and it is proving particularly helpful to teachers seeking to obtain scientific qualifications.

Participation in the work of the editorial board of an educational journal is another effective way of linking scientific work and educational practice.

4. An improvement in the relations between educational research and educational practice depends on:

   (a) the strengthening of the principle that social action should be taken by the state to promote research and the application of its findings in this field;

   (b) the strengthening of links within the framework of the comprehensive science - culture - education complex;

   (c) the working out of effective methods and criteria for evaluating the desirability of scientific research, taking into account the results obtained in educational practice;

   (d) the tying up of research plans with the programmes of publishing houses specializing in educational publications, for this would help to ensure the timely dissemination of research findings among those likely to turn them to good account;

(e) the inclusion in information bulletins on new research work (undertaken both in Bulgaria and in other countries) not only of bibliographical data but also of annotations highlighting the basic conceptions and ideas;

(f) the strengthening of scientific contacts at international level, not only in regard to the exchange of experience but also in the field of joint studies.

Research and practice in education:

The standpoint of the subjects of the educational process

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Most studies concerning the relations between scientific researchers and practitioners in the field of education relegate to the sidelines or exclude the actual subjects of the educational process, who are identified as, pupils and students, if we take as our point of reference the institutionalized formal education system, or as adults, if we take as our point of reference education as a global concept, in the context of lifelong education. The subjects of the educational process are not regarded as "practitioners" because, from the point of view of teaching, the only people playing an active role are and can only be teachers; nor are they regarded as "researchers" because, from the point of view of non-participatory research, the only people playing an active role are and can only be researchers themselves. Hence this conception excludes the subjects of the educational process both from didactic and formative activities and from research, because it separates education in an arbitrary manner from self-instruction, research from participatory research and self-directed research and, in general, education, on the one hand, from research on the other.

We think, on the contrary, that practical experience has revealed the need for a new conception of the relations between research and practice in education, and such a conception implies changing the significance of the terms "research" and "education" and the ways in which they correlate with one another: EDUCATION PRESUPPOSES RESEARCH in the context of a type of EDUCATION which would be at the same time SELF-INSTRUCTION and of a type of RESEARCH which would be at the same time PARTICIPATORY RESEARCH AND SELF-DIRECTED RESEARCH.

On the basis of this conception - which has been materialized in several practical experiments - the subjects of the educational process (pupils, students and adults) can and should be regarded as a separate sub-group among researchers and practitioners alike. The fact that they have a specific status and a specific role should be recognized and taken into consideration, but this is not at variance with their de facto and de jure position in these two groups and in their interrelationship.

This reality should be generally recognized. Such, however, is not always the case. The existing situation is due to the convergence of several factors, two of which deserve to be spelled out.

(a) Epistemological reasons: "traditional" science defines its prerogatives on the basis of the separation and conflict between "Theory" (with a capital T) and "practice" (with a small p); it asserts the absolute primacy of Reason over action, sanctifies knowledge gained through the intelligence and belittles non-rationalized, direct and spontaneous experience. From this standpoint, the subjects of the educational process are viewed as inert objects, devoid of any significant capacity for achieving self-knowledge, participating in their own education, developing their potentialities and asserting themselves; only education dispensed by the master (teacher) and research conducted by the expert (specialist) can have a real impact on the subjects of education and research, for self-instruction and self-knowledge have no value or validity.

(b) Methodological reasons: "traditional" science defines its methods of investigation in the light of the above-mentioned theory which discredits and even excludes such specific types of research as allow the subjects themselves to participate in the process of building up their own stock of knowledge, just as "traditional" education denies the value and even the possibility of a self-instruction effort made by the subjects themselves; hence the "impossibility" of combining the different methodologies deriving from the conventional approach (scientific methods applied by experts and educational processes directed by specialized educators) with the modern approach (methods promoting self-knowledge and self-instruction).

Our point of view stems from an altogether different idea of educational practice which, without underrating or eliminating the rationalized approach to reality and hence the scientific knowledge contributed by experts, tends to question the importance of speculative thought; it lays stress, instead, on the virtues of a praxis regarded as experience conveyed by the conscious action of a subject who is capable of achieving self-knowledge and participating in his own training and is also capable in some situations of mastering his own fate. It thereby asserts the interdependence of education and self-instruction and of research and participatory research, including self-directed research, and the integration of education and research. It therefore attaches value not only to the useful, and indeed necessary contribution of experts and specialized educators, but also to the contribution made by the subjects themselves both in the educational process and in the research process.

From these postulates there also follows another interpretation of the relations (and conflicts) between the researcher (and the community to which he belongs, whether it is institutionalized or not) and the users (and the communities to which they belong (whether they are institutionalized or not)), which may be set out diagrammatically as follows:

	users	function	time-frame
researcher	decision-maker (policy-maker, administrator)	preparation and legitimization of decisions	PRESENT
	educator (teacher, parent community leader)	functionality of the process (stability, continuity, effectiveness, routine)	PAST
	subject (pupil, student, adult)	self-fulfilment, improvement of education and practice, development	FUTURE

This diagram can be read as follows: the researcher is faced with the various expectations of users. Information on the product of his activity, the findings of educational research, are requested and judged by the users according to their status and their role in the educational process:

- decision-makers, who usually have to take action under pressure of the demands of the PRESENT, ask for immediate results to be used primarily for the purpose of preparing and legitimizing measures already adopted or about to be adopted; their criticisms of research bear mainly on the lateness, the slowness, and even the ineffectiveness and lack of realism of the studies;

- educators, who usually have to take action under pressure of the demands of the PAST (the exceptions confirm the rule...) ask for research findings that will ensure the functionality of the system in which they are participants invested with the responsibility for carrying out decisions; they ask for precise information to guide them in their day-to-day work and for solutions to the difficulties they encounter, but generally wish them to be in line with their standard practices, so that they are interested in conclusions which confirm them in their habits, and indeed in the stereotypes and rituals considered to be essential to the continuity of the process, the stability of the system and the reproduction of their established methods; for this reason most of the criticisms of scientific work which are expressed by educators allege either that it is ineffective (because of the gap between research and practical problems) or that it is Utopian (because of the ostensibly "unrealistic" nature of over-ambitious measures which call everything into question and want to change too much);

- lastly, the subjects directly involved, those who usually experience the effects of the educational process and who generally have to take action under pressure of the demands of the FUTURE, ask something else from research, and in particular a critical, forward-looking approach to the goals, structures, content and methods of education as it now exists, including decisions and practices, in order to change them in the interests of their own self-fulfilment and development; consequently, they criticize, on the one hand, the justificatory and legitimizing nature of research which offers post facto arguments to validate decisions already adopted, and on the other hand, the reproductive role of research which confines itself to describing the existing educational practices without calling into question what they are based on; they are discontented because they quite often find that the results of research are of no use to them, since the research was not centred on the subjects of the educational process and the findings are not the product of participatory research.

Admittedly, it is not easy to resolve these contradictions. Apart from all the other factors that may come into play, the differences between the users of research in terms of status and role seem inevitable. But a possible way of improving, if not radically changing, the existing situation is the one suggested by our approach, and this is confirmed, in fact, by an increasingly marked tendency to view education as incorporating self-instruction, and research as incorporating self-directed research, and therefore to consider that decision-makers, educators and the subjects themselves should be included along with specialists in action research and in participatory research.

Without dwelling on further examples, I should like simply to mention the case of the Romanian Centre for Research on Youth Problems, an institution attached to the Ministry for Youth Problems, which carries out interdisciplinary studies and which, since its inception in 1968, has undertaken, as its main task, to promote the participation of young people themselves in the process of building up their own stock of scientific knowledge. Studying a broad range of problems, the Centre has accumulated a certain amount of experience in the field of action research on young people and with young people, encouraging their participation in the various phases of the preparation of research projects (self-directed questionnaire), in the conduct of the research (self-observation) and in the application of the research findings (feedback). The research teams include, in addition to specialists (sociologists, psychologists, economists, educationists, etc.), decision-makers, leaders of youth movements, young people and educators. The results are communicated in books or scientific publications, syntheses intended for the information of decision-makers, educators and young people, at seminars and symposia and in continuing training courses.

Taking account of the more prominent role that Unesco and its Member States might play in the practical implementation of educational research programmes promoting participatory approaches, I should like to make the following proposals:

1. Measures should be taken in order to:

   obtain more feedback concerning research findings from all the social groups which are the subjects of the educational process (in the broad sense), through the most varied and appropriate means, such as: dissemination of syntheses of surveys to be studied with those concerned, most of whom are young people; regular organization of symposia with the participation of researchers, decision-makers, educators and the subjects of education;

   in particular, promote participatory research involving researchers, decision-makers, educators and the subjects of education;

   with the aim of preparing the public better for the reception and scientific discussion of reports on research in education, introduce or extend the practice of including in university or school syllabuses or in the structures of lifelong education, seminars designed to give students a grounding in the processes, methods and concepts used in the field of scientific knowledge.

2. An international survey should be organized on the status, objectives, fields of interest, activities and publications of the new types of educational research centres, groups and institutes which carry out participatory research with the collaboration of the subjects of the educational process. Unesco's future programmes should provide for a seminar to be held, at which the participants, who would be widely representative of this type of institution and would include other researchers, would seek to obtain and disseminate more information about experiences in participatory research.

3. In the context of International Youth Year (1985) (A/RES/33/7), and taking into account the resolutions and programmes of the United Nations, Unesco and IBE regarding channels of communication between international organizations and youth (A/RES/33/6):

   (a) collaboration should be developed between educational, university or specialized institutes and all other structures for educational research, on the one hand, and centres, institutes, etc., for research, training, information and dissemination of material concerning or produced by young people, on the other hand;

   (b) the draft programmes for the preparation and organization of the International Youth Year should provide for an international meeting to be organized on the theme: "Research on youth problems as an aspect of educational research and its impact on the participation of young people in social life".

Some viewpoints on strategies for utilization of educational research findings

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When attempting to analyse and describe the different functions of research and development activities related to education I have found it useful to identify two types of separate, although interrelated systems:

adaptive subsystems for education, and

educational research systems.

An adaptive subsystem for education is a part of a usually national education system with, among others, the following functions:

evaluation of the status and output of the system;

research concerning alternative organization, processes, etc. within the system;

development of alternative organization, processes, etc.; and

implementation and evaluation of system changes, i.e. of adaptive measures.

Within this subsystem educational research and development are, then, instruments among other instruments which can be employed in the performing of the subsystem's tasks.

An educational research system, on the other hand, is not a subsystem of an education system, but a subsystem of a larger system of science, a branch of science in its own right. This means that policy for maintaining and developing it cannot be subordinated to a society's policy of education. Educational research policy should rather be a part of the general policy of science. The major functions of this system are:

to create, develop and synthesize knowledge; and

to subject all knowledge, new and old, to critical scrutiny.

Naturally, the educational system of a country is the primary *raison d'être* of its educational research system. And no educational research system can afford to disregard the needs and interests of "its" educational system. The fact that the existence of a system is motivated by another system does not necessarily mean, however, that the first system must be subordinated to the second.

Since education is organized nationally, its adaptive system must of course also be a national system. In fact, each country today needs an adaptive subsystem of education which is tailored to national educational needs. But as research will be an important instrument of adaptation, each country will also need an educational research system which can serve as the scientific base for policy-oriented research in the field of education. In other words, unless educational research is well developed as a scientific discipline scientific research cannot be successfully utilized as an instrument of educational policy.

The national systems in the field of educational research and development need the cross-fertilizing and stimulating effects of international contacts. And this is true of policy-oriented, adaptive subsystems of education as well as of subsystems of science. A scientific system is - or at least should be - traditionally oriented towards international contacts and collaboration. Policy-oriented adaptive systems - in education or in other social fields - do not have the same ideals and traditions of internationality. Co-ordination and collaboration in different fields of national policy-making have, however, more and more become important tasks within many international organizations.

There are reasons why, at least at present, international co-operation aiming at the development of educational science should be regarded as more important than co-operation aiming at the promotion of research-based policy-making in the field of education. The following two reasons are, in our opinion, the most important:

> Since the internationality of science is much more generally recognized than the internationality of education, the possibilities of developing genuine international understanding and co-operation should be fairly good in the field of educational science.
>
> The development of a strong and viable educational research system is a prerequisite for the development of a system for the utilization of educational research as an instrument of educational policy.

High-priority areas of future co-operation

Co-operation between countries is needed in many different areas within the field of educational research. Since resources for this co-operation are - and will probably remain - fairly scarce, it is important that it be determined which areas should have the highest priority in the future. My studies of the future prospects of educational research in seven European countries have led to the conclusion that the following areas of co-operation are particularly important in the years to come:

> the retrieval and dissemination of information relevant to educational research;
>
> the development of research methods and techniques and the training of researchers; and
>
> the critical analysis and synthesis of the results of scientific studies with the aim of producing new and more reliable knowledge.

(E. Malmquist in co-operation with H. Grundin, 1975)

It may seem strange that co-operative research is not included in the above list of high priority areas of international co-operation. We want to emphasize that this does not mean that we regard co-operative research as less important in a long-term perspective than the areas listed. On the contrary, to reach a stage, where a substantial proportion of research in the field of education is a multinational endeavour, should be one of the primary long-term objectives of international co-operation in this field. In our opinion, this long-term objective can, however, be achieved only if international co-operation is developed and strengthened in the three areas listed above. If the international co-operative efforts are unduly and prematurely concentrated on the carrying out of multinational research projects, this may lead not only to a waste of resources but also to the discrediting of the whole idea of international co-operation in educational research.

International information processing

It seems clear that international information systems like the American ERIC and the European EUDISED will not be sufficient, in a long-term perspective. These systems are designed mainly as "pasive" systems for the processing of documents. What we need when bits and pieces of educational information pile up more and more, are systems of "active" retrieval and processing of information relevant to research in the field of education. This implies, among other things, some qualitative control and analysis of information input. If such control is lacking, the information processed by the system may become a huge, heterogeneous stream, where relevant and valuable information drowns.

The qualitative analysis of information input must be performed by some kind of permanent organization. An example of such organization is provided by the ERIC Clearinghouse in the U.S.A. These have obviously not been fully successful in their analysis of information input, which may be due to lack of explicit policy or to lack of adequate resources for this task. Nevertheless, the clearinghouse idea seems sound.

Such clearinghouses should not just pass information on from a sender to a receiver, but treat it actively and purposefully according to a set of internationally agreed principles. This could be achieved, if international clearinghouses are attached to prominent research institutions, which already specialize in important areas of educational research. There is also the possibility of attaching clearinghouses to international organizations specializing in a particular area of education. A reading research clearinghouse could, for example, be attached to the International Reading Association.

Critical analysis and synthesis of research on an international level

The importance of critical analysis and of synthesis in all scientific work can, in any opinion, hardly be too much emphasized. Critical analysis has been fundamental to modern science for more than three hundred years. And synthesis - in the sense of reduction of multitude and diversity of observation to a simpler structure - is a common fact in all kinds of scientific explanation and understanding.

Unfortunately, critical analysis and synthesis do not seem to function well within the field of educational research. Research tends to be "fragmentized" into numerous independent projects, which increases the risk that critical analysis and synthesis are neglected. The idea that criticism has a largely undesirable, negative function can also become widespread in organizations and groups lacking a "critical tradition".

The more or less hierarchic structure of many research institutions may restrict quite severely the free flow of criticism. And a misguided concern for good personal relations within the institution may also make people reluctant to engage in serious discussions about each other's work. We may, then, end up in a situation where every research project or every small research team is an island.

Apparently, we should not rely too much upon intra-institutional criticism and synthesis. Action must also be taken at the interinstitutional level, a level where mutual criticism and synthesizing have been neglected in most countries. It is particularly important that critical analysis and synthesis are promoted at an international level. There are several reasons for this:

Such promotion is vital to the development of a truly international community of educational scientists.

The scientific and academic prestige of these activities needs to be heightened, which might be easier to achieve by means of international co-operation.

The international perspective is often essential for a proper evaluation of ambiguous research results, and many research results within the field of education are ambiguous.

Stages of educational research activities tested at the National School for Educational Research in Sweden

(a) The primary stage with planning and carrying through of intense studies in comparatively small groups of pupils at the experimental school and other schools in the neighbourhood.

(b) The verification stage, when the outcome of the experiences gained from the intense studies of the primary stage are checked in field experiments, where larger groups of children from various parts of the country take part.

(c) The introduction stage, where such measures, means and expedients are generally introduced in the schools as have been found useful during the research activity of the first two stages. It is assumed that this introduction should be carried out by the existing media for training and further training of teachers but also by the sending out of curricula, research reports, methodical instructions and educational circulars of various kinds.

Teachers involved in the primary stages act as consultants at this stage, for instance by participating in in-service training activities.

(d) The dissemination stage, where well-trained journalists, in close co-operation with the research teams, prepare reports on research findings for further publication, using radio, television, newspapers, teacher journals, magazines and other available media to stimulate implications in practice in the classrooms and in the decision-making bodies.

Reference: Malmquist, Eve, in co-operation with Grundin, Hans U., Educational Research in Europe Today and Tomorrow. Lund, 1975

Research and practice in education

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1. Learning is the heart of the matter in education. All educational research is finally judged for its utility with respect to how much it contributes to the improvement of learning. Learning, however, has various aspects and is influenced by numerous factors: physical, genetic, bio-chemical, neuro-physiological, psychological, pedagogical, sociological, economic, historical, philosophical, etc. Hence, educational research has a vast sweep.

2. Most users of education as a system are, however, concerned with the quality and quantity of the output of the system. The output, although in aggregate form, is judged in terms of what has been learned, how much has been learned, how well it has been learned, and to what use such learning can be put by the individuals concerned so as to satisfy their individual needs and aspirations as well as those of their parents, of the society and of the state in general. But, all these aspects of learning outcome depend on various antecedent conditons, some of which are listed here:

(i) Individual

e.g. intelligence, aptitude, motivation, processes of learning, study habits, actual time spent on task

(ii) Institutional

curriculum, teachers' competence dedication, skills knowledge, school climate, homework, evaluation, teaching materials, classroom interaction, school management

(iii) Systemic

organization, structure, functions, rules, regulations, supervision, reward system, wage structure, certification

(iv) Administrative

Delegation of power, system of decision-making, lines of communication and control, the training and efficiency of bureaucracy, links between educational administration and administration of agriculture, industry, health, labour and employment

(v) Financial

sources of funds, system of financial control, funds over which school has control, funds over which the system has control, funds for stipends, building recreation

(vi) Materials

physical plant, equipment, books, teaching aids

(vii) Family

Parents' interest
in education, time
spent in study at
home, size of family,
residence, status,
poverty

Some of these are presage variables and some are process variables. Some of them are manipulable and some are not. Under such conditions, it is obvious that any improvement in learning outcome cannot be easily brought about. Any innovation or change introduced as a result of research in any one of the factors, conditions or processes mentioned above can have only a limited impact on the final learning outcome at the macro-level. There is thus, a genuine problem of educational research becoming immediately effective.

3. However, there is another problem in bridging the gap between research and practice because research in education tends to be discipline-based rather than field-based. In other words, the problems of research are not usually those which are found in the field, they are problems arising out of a tradition of scientific research in the various disciplines which have some bearing on education. The problems are not always those which are of great concern to the teachers, administrators, employers and parents. There is only some kind of awareness of such problems amongst researchers through informal discussions with users. Sometimes, newspapers and popular magazines reflect the needs and problems of users. But, there is little in-built mechanism by which a feedback, both ways between researcher and user is established. Agricultural research or medical research could be a better model for educational research. But, the model in practice is that of the social sciences which are more concerned with theory building, with micro-level empirical research and macro-level input-output analysis. One finds a good deal of empirical research, which fills the numerous journals concerned with the problems of educational research, and which are concerned with tools, techniques and procedures of classroom practices. These contributions have a fate similar to those of fads and fashions in sartorial, culinary or interior decorating arts.

4. The gap between theory and practice in education is very wide. Whilst one does find that there is generally a lag between a research finding in any field of knowledge and its practice, in education it appears that the time lag is too long and, for many findings, it is not even a lag, because the findings do not enter the classroom practice at all. There is something in education which makes the changeover from theory into practice very difficult indeed. Teaching, healing and administering justice are the oldest professions on earth. But education is common to all these professions. A professional person in any one of these age-old professions has to have education. Whereas education in the profession of healing or medicine has a direct bearing on the actual and day-to-day conduct of the physician in treating patients, whether in public or in private, this does not appear to be true for teaching. A teacher has to be educated in order to educate others, but teacher education has little bearing on the day-to-day conduct of the teacher in the art of teaching; at least the research evidence on this point is very weak indeed.

5. Whilst one notices these gaps, it also appears that even when good research has been done and a theory or model is available, educational practitioners are resistant to innovations required by such knowledge. Resistance to change is a common social phenomenon and the field of educational practice is no exception. Bureaucracy everywhere is a conserver, rather than a creator, and so, in educational

administration, one can hardly expect a quick acceptance and introduction of a new way of learning, evaluating, teaching, book-writing and what not. There is the complicating factor of the mind, rather than the body, being involved in teaching. Even in medicine, it takes time for a new treatment or medicine or surgery to get accepted, and one does a lot of experimenting in secrecy. But, people finally accept it, and so does the bureaucracy, because most of the changes or innovations do not cause irreversible damage, at least that is the assurance and hope. But, it is not so in education where the damage if at all done to a young immature mind, may be irreversible. What is worse, the line between education and indoctrination is thin and so the people and, therefore, the bureaucracy is very wary of any innovation or change in curriculum, teaching method, evaluation, books etc. The caution is justified because educational research has yet to attain the status of medical or agricultural research, where the people do not understand the sciences involved, but they do see the effects first hand and can correct it, if they wish. This is not so in education. First, the science, whatever little there is in education, is partially understood (it is not yet esoteric enough!) and what is worse they do not see the effects immediately. The gestation period in education is too long. One has to wait for ten years or so to see whether the young ones have really developed into something better. So, there is a feeling of helplessness, an inability to intervene and make good the loss, if any. The result is conservatism. Schools, in the generic sense of institutions of formal education, are truly the instruments of conserving a society as it is. Any change which arouses the slightest suspicion that this conserving function of the school may not be carried out properly by an innovation born out of research is suspect and, therefore, resisted.

6. There is another kind of problem. Educational research findings are rarely unequivocal. Usually confirmatory results are not obtained by independent researchers. Of course, it is difficult to experimentally control the numerous variables in educational research, and so there is always room for a replication of a study producing a different result. The powerfull tools of multivariate analysis are beginning to be used in some of the research, at the micro-level, on processes, and one can hope that over a decade or two, perhaps, we will have a dependable body of knowledge. The relatively new arrival of scientific educational research on the scene is, therefore, one of the reasons why practitioners have yet to develop confidence in accepting an innovation or change suggested by research.

7. Much of the direction of educational research in recent times is towards changing teaching-learning processes in the classroom, so that the learning of children can be optimised. But, such research lies unused because decision-making and control of the educational apparatus is directed towards conformity. Research can have very little use in such situations, because research, as in all sciences, begins with questioning of what exists, and also ends with asking further questions. It has taken centuries for physics to change the view of the universe. It will certainly take longer for the educational sciences to change the view of man.

8. The users of education have to be brought into the picture in determining what research in education needs to be done. The teachers, administrators and parents should meet with the researchers more frequently to discuss the problems with which they are concerned. A two-way communication channel has to be opened up between the researchers and the users, and it will be educational for both. Research in education will then be neither discipline-based, nor empirical technique-oriented research. It will be field-based, like in agriculture. It will require an organizational arrangement in which from the village level upwards to the national level there will be institutes of research in which the researchers, the teachers, the public, the employers the bureaucrats and others concerned should gather periodically to discuss what goes on in the institutions around them from

the kindergarten to the university. Arising out of such discussions, research problems should be formulated and specialized institutes for the pre-school, the primary school, secondary, higher secondary, technical, vocational college, etc., should be established to tackle these problems and provide immediate feedback. Once the research reports are available, these should be discussed in a non-technical language in the institutions of education, inviting all the parties concerned. But, if the innovations suggested by research are found useful, thereafter the teachers should be free to use these in the school, under expert supervision. Of course, all these will require the building of necessary infrastructures at all levels, provision of training of teachers, researchers, specialists, availability of equipment, books and journals at lower level near the villages. Above all, there has to be a national will to improve education by altering those variables in teaching and learning which, research evidence to date indicates, have the highest pay-off in terms of improving the quality and quantity of learning in classrooms.

9. Dissemination of results of research in education suffers because the results are published in professional journals read by researchers. Teachers, administrators and public men do not read such journals, by and large. In meetings of professional associations of scientists and educators, learned papers are read; symposia are organized and seminars are held in universities and institutions of higher education. The audience in such gatherings is, by and large, composed of scientists and educators themselves. The groups that are left out are planners, public policy-makers, administrators, supervisors, principals and, of course, the parents. Thus, dissemination, whether it is through publication in scientific and professional journals, or through conferences, seminars and symposia, does not really carry the message of innovation arising out of research findings beyond the four walls of the prestigious institutions and universities concerned with research. This is true of much scientific research in other fields. But, newspapers and media of mass communication fill in the gap between the researcher and the user by publicizing research results and discussing their implications. In education, this is yet to develop in many countries of the world.

10. The need for bridging the gap in communication is obvious. Let the scientific culture of educational research go on. But, in addition, it is necessary to develop a trained cadre of media men who will disseminate research results to the public at large. It is also necessary to bring into the institutes, universities, etc., the other groups mentioned earlier who are concerned with using the findings of research in bringing about changes, in specially designed meetings the purpose of which should be a two-way communication between the researchers and the users.

11. There are, however, numerous instances of classroom practices changing as a result of research, e.g. changing teacher behaviour in instructional process through feedback, formative evaluation based on educational objectives, individualization of instruction and self-pacing through programmed instructional strategies and so on. These applications of research findings indicate one important fact, viz. the role of the teacher. The teacher is the pivot of all worthwile educational change and any effort to bypass the teacher is likely to be counter-productive. Dissemination should especially aim at the teachers at all levels. In some countries, their number is perhaps second only to that of the defence personnel. By sheer size and by the fact that teachers are usually associated in unions make this the most important target group for any successful educational change. Besides, teachers are opinion leaders in the Third World countries, where illiteracy is high in the rural population, the economy is largely agricultural and the society is village-centred. In the developed countries of the world also, the teachers, through their associations, form powerful pressure groups, either to induce change, or to resist change.

12. In the Third World countries, particularly in the Asian region, the kind of research which the users find useful is concerned with bringing the community closer to the school so that the parents begin to take greater interest in their children's studies. But, as the children grow into adolescence and youth, their parents are more concerned about their character and are worried by the alienation which, according to them, education creates in them. As they grow up further, the parents are concerned about their employment. Educational research which can meet such needs and expectations has to be action research involving teachers, students, supervisors, administrators, employees and of course, parents. It means a change in the mode of functioning of the formal institutions which should move in the direction of non-formal education by bringing in flexibility, individualization etc.

13. The administrators and planners in the Third World countries, however, have different needs and expectations. They are concerned with a national curriculum as an instrument of nation-building. How to effect a compromise between a national uniform curriculum and a rational, relevant community need-oriented curriculum is a problem. Research should be utilized to find out what is the best way of making such a compromise so that supra-ordinate national goals do not come into conflict with subordinate regional or local goals based on semi-tribal, religious and linguistic identities. Another problem of the administrators is to optimize the efficiency of the system so that optimum work is done by the teachers, the learners and others concerned, within the serious constraints of resources in men, materials and money. This is a problem in planning education very often within a framework of state planning, which does not enthuse the parents, teachers and students. The administrators need research to show what will increase the initiative, drive and enterprise among teachers and educators, and they need research to show how the motivational and managerial problems can be solved.

14. Finally, the significant problem, which research has failed to tackle, but which the users expect the researchers and decision-makers to tackle, is that of unemployment of the educated youth. The linkages between the institutions of learning at all levels and the public and private sector employing organizations are weak in most countries. Guidance and placement services, career information and planning, are not integrated with curriculum construction and pedagogy and the employment market. Researchers have not entered this difficult field in a big way. It will have to be a different kind of multidisciplinary research, with quick dissemination of results and field trials built into the schemes. It will require dove-tailing of formal, non-formal, pre-vocational and vocational education, with a networking of educational and employing institutions.

What ontogenetic studies can contribute to reflection on the theme "Research and practice in education: How to strengthen links between research and practice in order to improve general education"

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Since 1970 a multidisciplinary research group in Besançon has been studying the genesis of the child's sensory systems and communication systems from the time of birth to secondary-school age. It is seeking at the same time to establish when and how the biological rhythms linked to the defence and adaptation of the body organize themselves or fluctuate depending on the events that occur in the environment (H. Montagner, 1973-1981; H. Montagner et al, 1973-1979; Restoin et al., 1981). The research is carried out in various institutions, according to the age under review (gynaecological and obstetric clinics, day-care centres, nursery schools, primary schools, secondary schools). It is always based on dialogue and co-operation with parents, child-care workers, nurses, midwives, primary-school teachers, doctors and school inspectors. On the basis of these exchanges and our exploration of this problem area we have prepared the present paper as a contribution to the reflections of those participating in or concerned by the Unesco colloquium on "Research and practice in education: How to strengthen links between research and practice in order to improve general education".

I. The kind of research which is relevant to the expectations and the needs of users

The nature of our research has led us to regard education as the result of the contributions made by the social environment to the development of all the types of functions of the child's nervous system: mental, cognitive, affective, behavioural, psychosomatic, etc. It seems artificial and restrictive to identify education simply with those processes whereby society transmits cultural and intellectual information to the child.

Our research on the development of the child and our dialogue with parents and "practitioners" concerned with children have brought to light the following expectations and needs:

(a) A deeper knowledge of the genesis of the sensory systems of the child born at term and of the premature baby. This is necessary in order to: (i) detect at an early stage sensory anomalies, deficiencies and absences in the baby; (ii) take account of these particularities (children suffering from blindness, defective vision, deafness, defective hearing, anosmia, etc.) so as to ensure that the relational, affective and cognitive needs of such children are catered for, both within the family and in outside institutions; (iii) make the mother and father aware of the importance of all neonatal modes of relationship in the child's development. We know, for instance, that, as early as the third day after birth (and perhaps before), babies can distinguish between their mother's smell and that of other mothers (B. Schaal et al, 1980-1981). Other types of sensory discrimination emerge at an equally early stage. Very early on, then, the baby "builds" for himself a specific reference system by collecting information concerning his immediate family through all his sensory channels, and not only through the acoustic channel. Any deficiency or imbalance in the reference system may have harmful long-term consequences. We know that deprivation, at an early stage, of a particular type of specific stimulation (for instance, somesthetic stimulation in certain primates: H. Harlow, 1969, 1970) and early separation from the mother (for instance, in the cases of hospitalization described by R. Spitz, 1969) may give rise to such relational and emotional disturbances in individuals at an early stage in their development that the concept of educaton, in the exclusively cognitive sense of the term, then becomes meaningless; (iv) organize the atmosphere prevailing at the time of birth so as not to introduce into the baby's environment any aggressive stimulation that may be harmful to its development (see the methods of Leboyer and Odent).

(b) A deeper knowledge of the origins of "disturbing" behaviour: agressivity, instability, fear, isolation, stereotyped responses etc., to be gained by examining it in terms of growth, context and events experienced. Behaviour is in fact a motor which generates and regulates the child's power to adapt himself to his environment while at the same time revealing the influence of the environment upon the child's development. At the same time, the child's non-adjustment or maladjustment to a social structure, in particular when the latter serves an educational purpose, derives from behaviour patterns considered to be disturbing, deviant, pathological, etc. Accordingly, no educational approach can afford to disregard the mechanisms and functions of behaviour: only by gaining a deeper insight into the child's relational behaviour can the educator attain the optimum level of adaptation to each child's characteristics in order to ensure that he is neither neglected nor rejected. Yet the behavioural problems of the child are all too often disregarded, underestimated or denied.

(c) A better understanding of the genesis of groups and the way they function. This is necessary in order to form or modify groups in such a way as to take into account the major behaviour patterns (aggressivity, instability, fear, isolation, etc.) and the biological and psychobiological characteristics (defective vision, defective hearing, asthma, etc.) of children with special difficulties so that each individual can draw maximum benefit from group life.

(d) A deeper knowledge of the genesis of biological rhythms, from birth to adolescence (waking-sleeping rhythm, feeding rhythm, endocrinal rhythms, growth "rhythms", attention-span rhythms, etc.). This is necessary in order to plan a better organization of the time spent at home, school time (school work rhythms) and other time by providing leisure-time facilities, summer camps, etc.) in accordance with the child's own rhythms and the biological and socio-professional rhythms of parents and educators.

(e) A deeper knowledge of the genesis of "disorders" such as anorexia, enuresis, fear of the dark, sleepwalking, etc.. This is necessary in order to understand better the origin, contexts and consequences of such disorders which may play quite a significant role in the child's emotional and cognitive development.

(f) In general, a deeper knowledge of the indicators (or warning signals) of behaviour, mental processes and physiology which enable an early and precise prognosis to be made of a child's predisposition to develop characteristics considered to be disturbing, deviant or pathological (when he is described as psychotic, dyslexic, emotionally disturbed, etc.). This is necessary in order to counteract, at least to some extent, the tendency to develop such disorders.

(g) A deeper knowledge of the genesis of cognitive systems at the different stages in the development of the child's sensory, motor, behavioural and physiological systems. It is necessary to gain more insight into the role played by disorders or deficiencies in sensory systems (in cases where children suffer from defective vision, defective hearing, etc.), motor systems (in cases where children have lost a limb, are hemiplegic, etc.), behavioural systems (in cases where children are emotionally disturbed, unstable, fearful, etc.) and physiological systems in the development of backwardness, deficiencies and anomalies in learning processes.

II. The main obstacles that prevent a greater impact of research findings on educational development and innovation

(a) The routine and conservatism of decision-makers, who are more inclined to follow a particular political line and to favour certain categories of voters than to take account of research findings.

(b) The routine and conservatism of educational institutions, together with habits and attitudes of mind which cannot easily be changed.

These two points may be illustrated by the problem of school work rhythms, which has recently been brought to the fore by the French government without preliminary consultations or scientific research. The notion of school work rhythms is used as a pretext for staggering the summer holidays, the "unavowed" objective being to serve the interests of the tourist industry and the hotel trade, but it remains to be proved that this objective is in fact attained. However that may be the changes made in the school calendar are by no means founded on scientific research data which, in any case, are not yet sufficiently developed to provide clear answers to questions concerning the distribution of school time and non-school time throughout the year and throughout the week. Furthermore, the very idea of school work rhythms is dismissed outright by many teachers, who have not been made fully aware of the real importance of biological rhythms (by studying periodic variations in the physiological and psycho-physiological functions and thus identifying high points and low points in those functions during the day, the week, the year, etc.) and are disinclined to change their habits and their own rhythms of activity.

(c) The inadequacy or lack of dialogue between decision-makers and research workers (see previous subparagraph).

(d) The inadequacy or lack of dialogue between researchers and "practitioners" concerned with children (child-care workers, nurses, midwives, teachers, specialized educators, doctors, etc.). Here again, defensive reactions often replace or colour attempts to hold exchanges of views on the facts and establish two-way co-operation.

(e) The inadequacy or lack of dialogue between the research teams that study different aspects of the child's development or of education systems. This is itself a result of: the dogmatism of specialists, schools of thought or ideologies; defensive reactions to new lines of approach; conservative structures, ossified by change-resisting texts or states of mind; the methodological or geographical distance between teams; insufficient financial resources to cover the cost of organizing meetings and collaboration between teams.

(f) The superficial use by the media of research findings which have been partially or badly understood. Far too many journalists serving as accredited correspondents in the fields of education and pediatrics more often reproduce an opinion or a few opinions, said to be authoritative, than a survey or a summary of the question dealt with (which, in most cases, they would find in the proceedings of colloquia, symposia and congresses). Radio and television programmes on such subjects, at least in France, are broadcast late in the evening and consequently reach only a small number of users, those who are the best informed and most motivated; more often than not, these programmes present a "mishmash" of badly prepared material which multilates, masks or distorts the message. It would therefore be desirable for meetings to be held between media policy-makers, researchers, practitioners and parents to ensure that radio and television talks and discussions are properly programmed so as to reach the maximum number of people, without losing any of the spontaneity of "live" broadcasting.

(g) The training and information provided for researchers and practitioners, which are often sketchy and dogmatic. It would seem desirable, for instance, that pediatricians should be more completely equipped with information and training related to psychology and the behavioural and social sciences. The same is true for psychologists with regard to pediatrics, psychiatry, endocrinology, etc. It would seem equally desirable that specialized educators should not concentrate exclusively on psychoanalysis, as is often the case, even though it should continue to be an essential part of their training.

III. Co-operation between researchers, decision-makers, planners, teachers and parents

(a) It is necessary periodically to organize national and then international meetings between decision-makers and researchers so that they can engage in dialogue and prepare syntheses and work programmes which can be amended from one year to another.

(b) It is necessary to organize working meetings between researchers and child-care workers, nurses, teachers, doctors, etc., and parents with a twofold aim: to inform "users" about new data established by research leading, or expected to lead, to the application of scientific knowledge; to obtain and discuss in a totally open-minded spirit the opinions and hypotheses of users concerning the various aspects of the child's development. As such meetings, researchers may formulate new hypotheses and modify their work plans after ascertaining the users' wishes as to the directions in which research should be pursued.

(c) It is necessary to organize working meetings with representatives of the media (see section II above).

(d) Clear and well-illustrated synoptic reports should be prepared on the various aspects of education and a journal designed to popularize scientific work should be distributed in hospitals, day-care centres, schools, specialized institutions for children, etc. The editors of the journal would be assisted by an international reading committee and would accept articles on the hypotheses, methods and reflections of practitioners.

(e) It would be desirable to compile an international catalogue of various past, current or projected experiments, showing their objectives, their methodology and their main results.

(f) It would be desirable to set up a body composed of high-level educators trained in psychology, the biology of development, pediatrics, psychiatry and sociology, who could be consulted at any time by child-care workers, teachers, etc., on all child development problems the members of this body could also be asked by parents to give advice on such problems or they could take the initiative of visiting families whose children have behavioural, psychological, psychosomatic or physiological difficulties, in order to talk to the parents and seek the right solution for each child. Such a body of educators could be an important link between researchers and "practitioners" concerned with children.

(g) It would be desirable to establish regional centres for the observation of the social environment, which could popularize the main findings of educational research with the help of regional researchers. They could also serve as the venue for the meetings advocated above and as the administrative residence of the high-level educators. Besides disseminating the synoptic reports and the popularized scientific journal they could communicate information on the research specifically concerned with their region to other regional observation centres.

IV. Our experience of dissemination of research results

(a) The meetings that we organize every year with parents, child-care workers, nurses, midwives, teachers and doctors show that films (super 8, 16 mm), video tapes and slides are invaluable means of transmitting information.

(b) We also systematically project films, video tapes and slides at meetings of associations of child-care workers and of teachers (for instance, the General Association of Nursery School Teachers) and at those of associations of psychologists, educators, doctors, parents, etc., as well as at trade union meetings when we are invited by those bodies to describe our research findings. These associations, if well informed, often serve very effectively as channels for the dissemination among educators of information about research work.

Two 16 mm films illustrating part of our research can be loaned by the Service du Film de la Recherche Scientifique, 96 boulevard Raspail, 75005 Paris, for a modest sum, to any educational body on request.

(c) As regards the life rhythms of the child and the adolescent, a symposium was organized in Paris on 17 and 18 January 1980 by ourselves and the National Primary School Teachers' Union. It was attended by doctors, biologists, psychologists, ethologists, teachers, trade union officials, persons in charge of leisure-time facilities, etc., who described either the findings obtained by their own research work or by other national and international research work, or the results of their experiments in education. The intellectual independence of the participants and their receptive attitude to the ideas expressed in the talks and discussions were highlighted by the media. We prepared a consolidated report on the symposium which was criticized and amended by the participants. The final report was then very widely distributed among teachers and many other educators through the National Primary School Teachers' Union. The findings were largely reproduced by the Rapporteur for School Work Rhythms in the Economic and Social Council. Unfortunately, the Minister of Education does not seem as yet to have taken them into account. Such symposia are valuable, however, for they enable points to be clarified and syntheses to be made in specific fields thanks to the collaboration of researchers and educators with different backgrounds.

(d) Research findings are seldom well reported by the media because more prominence is systematically given to ideological positions than to such findings. This is what has occurred in the case of school work rhythms: a French radio station and a regional newspaper organized an information week on this topic which was virtually designed to justify the position of the Ministry of Education, without taking into account the conclusions of the aforementioned symposium... although the responsible officials were fully aware of them. Research findings cannot be truly disseminated unless the media first take an interest in the development of the child and in education.

Our experience with the French television services has been just as disappointing. On the other hand, we have shown two far more satisfactory programmes with the B.B.C. and Television Suisse Romande respectively. Lasting 50 minutes, they were carefully prepared by producers and journalists who carried on a lively conversation with researchers, child-care workers, teachers and parents. Obscure points were always discussed, both in the preparatory phase (several months before shooting) and in the shooting and editing phases. Then, finally, the programmes were broadcast at peak viewing hours.

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A participant's contribution

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Research relevant to the kind of education in rural areas in some developing countries is needed. These areas encompass the majority of populations. In Egypt about 70 per cent of the population lives in rural areas where access to six-grade primary schools and basic education (6-15) is limited. About one-third of children (aged 6-12) receive no (formal) education. In addition, primary education in its present form requires comprehensive development in administration, curricula, training methods, evaluation, teacher training ... so as to minimize waste and drop-out and to link it to practical life in different environments.

The problem

Educational and social reformers and authorities hope for improvement in the preparation of children for productive citizenship besides stressing its significance in associating education with society in a process of mutual interaction which accelerates development, progress and innovation. It would, at the same time, strengthen the ties that bind the child to his land and his country. It is hoped that serious and sincere efforts could be made in reviewing the structure of this first stage of education with a view to securing a broad base of formal and non-formal (basic) education that would ensure achievement of the minimum basic knowledge, skills, values and experience required for conscious and productive citizenship.

Could the majority of developing countries with their limited funds afford to offer their children the kind of education that could achieve the above-mentioned goals or expectations?

The challenge

- The rate of population increase in the majority of developing countries is rising; this affects the kind and number of services rendered by the governments to their nations. Education, health, social welfare, etc., are amongst these services.

- 40 per cent of the population in many developing countries falls within the 0-15 year age-group. This is a non-productive group which has to depend economically on half of the remaining 60 per cent (the able working men and women, excluding the disabled and aged).

- The cultural and technological gap between the developed and developing countries continues to widen and deepen. There are enormous differences between pre-industrial, industrial and post-industrial countries.

- The explosion of knowledge has risen to the extent that the majority of countries find it difficult, or impossible, to cope with it. Existing increased expectations leads to a great deal of frustration.

- The transplanting of imported educational systems in a country needing educational reforms may not be useful. In addition, importing new ideas or practices from other countries without adapting them to the national culture, may be harmful.

The question

The question arises:

How can developing countries with limited and relatively humble financial resources offer a suitable kind of education to their growing generations?

Taking into consideration:

- the dilemma of priorities - to begin with reform in education - to prepare effective manpower, or initiate massive economic development which will in the future yield substantial financial returns to be used for the improvement of education;
- the impact of social traditions, which, in some cases, prevent girls at a relatively young age from attending school;
- economic pressures forcing many farmers to ask their children (attending school) to help them in their fields, or to work for others to increase the family income. Some fathers consider what their children learn in school to be useless;
- prevalence of illiteracy which has, in some countries, reached more than 90 per cent and efforts to combat this finding little success.

The suggestion

The traditional patterns of formal schooling in the first stage of education in some developing countries may not be the best or most workable solution. Systems rendering fruitful results in one society may not work in another.

So, for some developing countries or areas, a kind of education that suits the actual needs of children in their particular societies should be suggested. In this sense, the curricula and school practice should differ in (some) rural areas from urban areas. Four school years may be sufficient for some rural areas during which those attending school will be exposed to theoretical as well as practice experience.

Channels should, however, be wide open for the eager and able child to pursue its education after finishing the four years. Non-traditional or non-formal approaches should be offered to these learners, such as afternoon classes, mass media, etc.

Research

Research is needed in the various aspects of education during the four-year programme. Examples of such research could be:

- What minimum health information should be offered to children (nutrition; health habits; protection; common diseases; eating habits, etc.)? The main concepts should be the results of such research, as well as the most effective practice.
- What minimum manual skills should be offered to children (manual skills to be developed for both boys and girls)? A manual skill may be enhanced by the "why-we-do-it-this-way"

- What competences should the children master so far as financial dealings and operations (on a limited scale) are concerned.

Such research may offer workable suggestions for planning the four-year programme for basic rural education in some developing countries.

Educational research and regional dissemination in Latin America

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Reflection on educational research centres on a wide variety of aspects in accordance with the nature, subjects, field and time of research, but also according to the countries concerned. The "Seminario '80" organized in Chile (Isla Negra, from 14 to 18 April 1980) by the CIDE (Centre for Educational Research and Development) on "Educational research in Latin America: situation and prospects" duly drew attention to the abundance of this material.

However, of all these aspects, that of the dissemination of research has become one of the most important at the present time.

In the developing countries, their level of socio-educational development is a sufficiently good reason in itself for adopting an aggressive policy in regard to the dissemination of research, and not only at the national level but also at the regional level.

A strategy for the regional dissemination of research can perform a dual role: on the one hand, it can help several countries faced with very similar problems to add to their stock of knowledge and, on the other, it can encourage efforts to devise alternative policies to those which serve to perpetuate the cultural domination of the former colonial power.

In the last few years there has been a significant increase in the number of researchers and educational research centres in the whole of Latin America. The reasons for this increase are very debatable. As was pointed out in an article written by Robert Myers, fashion, international pressure, the growing number of technically qualified bureaucrats, hopes of miracles, the creation of jobs for researchers, each of these causes partly explains the increase, but we should not exaggerate the role of any one of them" ("Connecting Worlds", Ottawa, Canada, December 1979, mimeo.).

This development has not, however, been matched by a comparable increase in contacts between Latin American researchers and centres. In order to illustrate this point, I have sought to evaluate the volume of such intra-regional exchanges by a very simple method. Starting from the assumption that any information obtained about the work being done in other countries is recorded in the form of bibliographical references to the relevant authors and experiments, I have examined two Brazilian specialized journals and eight books published by Brazilian specialists in order to count the number of references to Latin American literature by comparison with the number of references to works published outside the region.

The journals selected were, first, "Educacão e Sociedade", a very recent journal (founded in 1978) with reformist leanings which is published every four months by the University of Campinas (UNICAMP) in São Paulo, and secondly, the "Revista Brasiliaira de Estudos Pedagogicos", a much older quarterly (founded in 1915) with predominantly conservative leanings which is published by the Instituto Nacional de Estudos Pedagogicos (INEP) of the Ministry of Education and Culture.

The eight books, chosen at random, were published or republished in Brazil between 1977 and 1979:

Escola, Estado e Sociedade (1978), by Barbara Freitag;

Ideologia e Educacão Brasilaira (1978), by Carlos R.J. Cury;

Educacão e Desenvolvivimento Social no Brasil (1978), by Miriam J. Warde;

Politica Educacional e Populismo no Brasil (1979), by Nicanor P. Sa;

Pedagogia do Oprimido (1978), by Paulo Freire;

Projeto Educacão (Volumes II, III and IV), published by the Federal Senate in 1979, which reproduces lectures given by specialists on various aspects of education.

Despite its questionable representativity, my miniature survey has yielded some fairly revealing results.

From Table 1, Journals, three facts emerge:

1. The quantity of information deriving from international bodies is very small.

   Of the 583 references noted, only 12 relate to documents published by such bodies.

2. There are many more references to foreign books and/or articles than to national titles. The former (310) greatly outnumber the latter.

3. There are not many references to Latin American sources. These (26) barely account for 4.5 per cent of the bibliographical notes.

In Table 2, Books, the situation as regards the three foregoing facts is as follows:

1. Very few international documents are cited.

2. It is clear that most of the references appearing in the texts are to national authors and experiments - 670 out of a total of 928.

3. The number of references to Latin American publications is insignificant. The average proportion is only slightly higher than 2 per cent.

Comparison of the two tables reveals a notable point of divergence and two points of convergence. The divergence lies in the contrasting number of national sources. The disparity existing in this respect between books and articles in journals is perhaps due to the very nature of those publications, for a far wider range of topics is dealt with in journals. As for the points of convergence, they are found in the two facts that very little use is made of information deriving from international bodies and that there are very few references to Latin American publications. In the latter case, the percentage shown in the table concerning journals (4.5 per cent) is more than double the percentage noted in the table concerning books. It should also be pointed out that in the newest journal (Educacão e Sociedade) there are 25 references to Latin American publications, whereas the four issues of the other journal taken together contain only one quotation from a Latin American work. This may be an encouraging sign, heralding an improvement in the prospects for the integration of regional literature.

But, even so, it emerges from this analysis that educational research in Brazil is isolated from its counterpart in other Latin American countries.

To remedy this one-sidedness as far as possible, I think that the following measures should be considered:

1. working out ways of establishing exactly to what extent relations at the regional level are inadequate and identifying the causes of this inadequacy;

2. promoting the wider dissemination of abstracts such as "Resumos Analiticos en Educacão" published by the Centro de Investigacion y Desarrollo de la Educacion (CIDE - Chile);

3. stimulating regional commercial exchanges of books and specialized journals in Latin America;

4. facilitating regular personal contacts (through seminars, technical assistance projects, joint activities, etc.).

The measures proposed above could constitute a programme to be financed directly by various Latin American countries or alternatively by international bodies such as Unesco and/or OAS.

For medium-term and long-term purposes, this programme could serve as a useful means of fostering closer relations between the different Latin American countries.

TABLE 1

BIBLIOGRAPHICAL REFERENCES ACCORDING TO THE NATIONAL ORIGIN OF THE AUTHORS OR EXPERIMENTS CITED

Four last issues of 2 specialized Brazilian journals

No. of Vol. (x)	Number of articles	References or notes			Latin American	Latin American %
		Brazilian	International organizations	Other (xx)		
1	10	15	-	52	3	4.3
2	12	70	7	35	8	6.7
3	10	40	-	27	2	2.9
4	11	33	1	82	12	9.4
140	4	11	3	23	-	
141	6	49	-	18	-	
142	6	32	-	26	1	1.7
143	7	11	1	21	-	
TOTAL	66	261	12	284	26	4.5

(x) 4 issues of the journal "Educacão e Sociedade" (Nos. 1-4), followed by 4 issues (140-143) of the "Revista Brasileira de Estudos Pedagogicos".

(xx) References or notes relating to foreign authors and experiments, with the exception of international or Latin American bodies.

TABLE 2

BIBLIOGRAPHICAL REFERENCES OR NOTES ACCORDING TO THE NATIONAL ORIGIN OF THE AUTHORS OR EXPERIMENTS CITED IN 8 BOOKS ON EDUCATION PUBLISHED IN BRAZIL (1977-1979)

Books (x)	References or notes			Latin American	Latin American %
	Brazilian	International organizations	Other (xx)		
1	153	-	10	2	1.2
2	47	-	10	2	2.9
3	34	-	13	1	4.8
4	51	-	21	-	-
5	97	3	39	1	0.7
6	13	-	34	11	16.6
7	151	16	56	1	0.4
8	124	2	34	2	1.2
TOTAL	670	21	217	20	2.1

(x) The titles of the books are given in the text of the contribution.

(xx) References or notes relating to foreign authors and experiments, with the exception of international or Latin American bodies.

Some obstacles to diffusion and utilization of educational research

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Interest in the relationship between educational research and the improvement of general educational practice has as long a history as formal education itself. From late 1800 and early 1900 (Froehlich, 1957) educators and practitioners developed unprecedented enthusiasm, hope, confidence and zeal in the possibility that educational research would facilitate attainment of solutions to the many educational problems in different societies. The focus of inquiry at that time was on the school curriculum, its content, methods of instruction, facilities for learning in school and development of methods of evaluating educational effectiveness. The current interest in the dissemination, diffusion and utilization of research findings smacks of the Morrison (1945) article on: "The Role of Research in Educational Reconstruction", cited in Harris (1960, p. 155). The recurrent concerns over a century regarding educational research and practice reflect the reality of the relationship between research and its utilization, which is complex, difficult, and dynamic. This paper will attempt a survey of the obstacles to the diffusion and utilization of research findings in education. Deliberate attention will be given to the situation in developing countries as the author is more familiar and sympathetic to the situation there. Some possible solutions will also be given in the same spirit.

Obstacles to dissemination, diffusion and utilization of research findings in education

It is a truism to contend that each human activity has its own history. The early phase of true scientific research in education which lead to the establishment of educational research centres, bureaus, units and councils, has tremendous bearing on current practice. Froehlich's (1957) survey of educational research facilities and Barr's (1958) survey of the development of research methods in education reveal that early orientations were laboratory and quantitative based. They point out the existence of such influential research centres as the Wundts psychological laboratory in Germany and the Karl Peason biochemical laboratory in England in which correlational methods were evolved during the study of the relationship between heredity and human learning. In France, it was the very quantitative Binet and Simon study of human intelligence and its relations to school learning, that provided the foundation for the study of educational activities. In America, it was the development of standardized intelligence tests by Thorndike - a very quantitative and laboratory-based activity - that provided the basic foundations of educational research in America.

It is not surprising, therefore, that one of the obstacles to the utilization of research findings in education today and in the social sciences in general, is the frequently observed tendency for research reports to be very quantitative, abstract, jargon laden, lengthy, and very often circumlocutory. All these, and the use of esoteric terms and special jargon of the discipline, especially educational evaluation and educational psychological terms, make the research reports inaccessible to the ordinary educational administrator. In effect there has developed a practice and a habit of writing two research reports on the same single investigation. One called technical report and another called consumer's report, which is a very uneconomical and unsatisfactory arrangement, especially in developing countries since it depletes scarce resources and creates division between researchers and administrators, with the latter being labelled "less sophisticated". Sinha (1980) calls this phenomenon "an inflation of jargon and professional baggage" which have been substituted for insight and sensitivity to evidence and application. It seems that researchers loose by emphasizing glittering language at the cost of ideas and simplicity. In effect many educational administrators are overly disturbed by the vagueness of the language used by some researchers.

The second major obstacle to effective utilization of research findings is the tendency to separate researchers from policy-makers and administrators and to assume that knowledge and its application follows a linear model (fig.1). A cursory inspection of educational research facilities, their nature and location clearly shows the way this model operates. The research facilities include bureaus, centres, councils and units. But these are places for professional researchers, by and large associated with universities. Policy-makers and administrators and the implementers such as teachers and school inspectors are ordinarily not to be found in these centres.

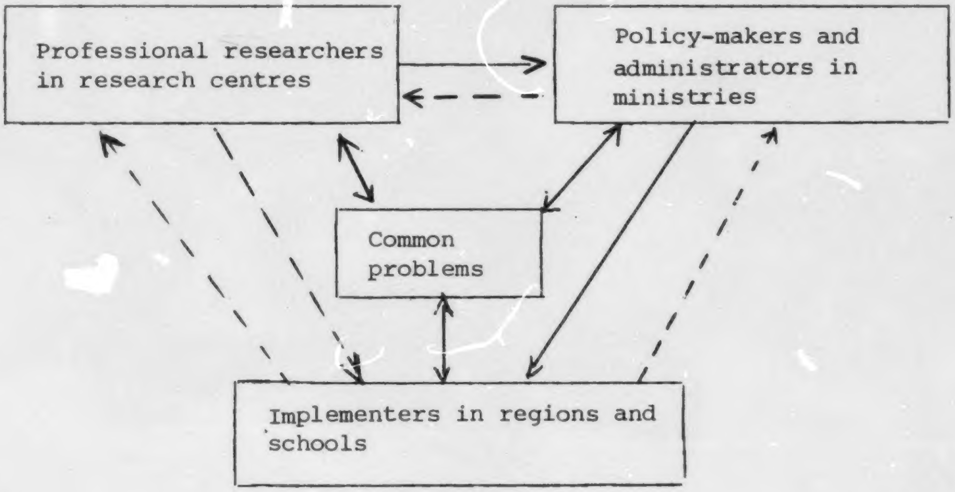
Professional researchers in research centres
Policy-makers and administrators in ministries
Common problems
Implementers in regions and schools

Fig.1 The linear model of research and its application.

——→ Strong direction of communication.
- - - -→ Weak direction of communication,
←——→ Suggested dynamic communication network.

In addition, implementers hardly ever get involved in the research process itself and rarely have a dialogue with researchers. Thus the circle, in terms of the movement of ideas is not complete. The implementers are passive reactors to instruction from policy-makers and administrators, rather than active seekers of knowledge.

This lack of involvement of policy-makers, administrators and implementers in the research process makes most research findings sterile by the time they reach policy-makers and implementers. There are more serious consequences of this traditional mode of operation. In developing countries, researchers are starting to feel that they are suffering from a crisis of social relevance. The temporal and spatial separation between research and its application makes most of their research findings irrelevant to the decision-making process, for either they are late or there is utter disregard for the research findings. In addition, many researchers end up choosing research problems which are largely replicas of studies done in the West, hence their research is termed Euro-American products which have little bearing on current educational problems in developing countries.

Another serious consequence of this separation of the research process from its application is the development of a wide communication gap between researchers and consumers of research and the associated problem of an uneasy relationship between educational researchers and government which result in part from the ignorance on the part of government of ongoing research, existing research findings, the importance of research, and in part from the real differences in ideological orientations between researchers and government people. In some countries, in fact, there exists among government people an attitude of suspicion, fear and impatience, and educational administrators develop feelings of political insecurity, all of which make research findings very threatening, as research can disturb the existing delicate and fragile balance in trust and social relations in a given government bureaucracy. Thus, administrators prefer to be engrossed in the day-to-day problems of maintenance rather than change and convince themselves that their actions should depend more on their biases, assumptions and hunches rather than on facts and generalizations made available by scientific inquiry in education. Then they would ward off any approaches by researchers by labelling all research as being purely academic and impractical, done either to obtain higher degrees, prestige or luxury.

The ideal situation for strengthening links between research and its application for improvement of education is where both researchers, consumers and implementers form joint research teams and/or committees which work on common research problems continuously from conception of the problem, design, investigation, interpretation and utilization of research findings. In practice, education administrators may be too busy to participate in all stages of research. However, in Tanzania (Muze, 1980) an experiment is going on in which the Ministry of Education has created a Research and Evaluation Unit which will have manpower to participate in research projects which have social relevance and application. The Unit will also advise researchers on relevant problems for research and sift through research findings and liaise with administrators, policy-makers and policy implementors on current significant research projects and findings. This seems to be a promising experiment in forging links between research and practice. Another innovation in the same spirit is the formation of a joint committee of researchers, policy-makers, and practitioners to investigate factors militating against the effectiveness of primary education in Tanzania (Omari and Mosha, 1980). This resulted from a general feeling among the three categories of participants and the public in general, that things were not going very well in primary schools and that standards of excellence were being eroded and achievements decreasing. It is hoped that through this type of joint committee approach, significant research findings will be fed into the educational system for its improvement as the research project progresses to its final stage. Thus the project is conceived as action, developmental problem-solving research.

It should be noted, however, that more often than not, educational programmes are established in response to political and social pressure rather than compelling research evidence. It is only after programmes have been set up that there is search for knowledge, concepts and expertise to rationalize them and make them work. It is also true that government administrative decisions occur in the context of administrative continuity and result from a process of political activity involving compromises among interested parties. This decision-making process may often defy "rational" thinking for social relations may take precedence over use of evidence. The educational researcher needs to get involved in this decision-making process and make research a more continuous activity rather than a once-in-a-while intervention. Cohen and Garet (1975) rightly observed that the function of policy research is at least as much to describe and discuss the premises and objectives of policy as it is to predict policy effects. Thus applied research resembles a discourse about social reality, an intelligent debate about educational problems and their solutions. It is only when there is a continuous debate about education, about research, about research findings and their relevance that the links between research and practice can be enhanced. Continuous evaluative discourse has to be an integral part of scientific inquiry in education and its application.

However, this is only possible if there exists what Shaeffer (1979) called "a research mentality" consisting of attitudes, values and actions supporting research activity, an appreciation and patience for the logic, the systematic nature and the effectiveness of good research in guiding excellence in educational practice. Thus, education administrators and practitioners may not all need to have sophisticated research skills but this basic appreciation of research seem to be a minimum condition for any meaningful continuous co-operation and collaboration between researchers and consumers of research. This appreciation institutionalizes research. Related to this appreciation is the creation of a research climate in a country which regards the tradition of an inquiring mind as a valued quality, openness to criticism and change, attaching great value to education as a crucial component for any developmental strategy, demands for research from policy-makers and administrators, recognition and respect for good research (as non-material rewards), interdisciplinary respectability and communication, connections with communities of educators in other countries and willingness to share and exchange ideas and information between administrators and researchers. These seem to be prerequisites if meaningful links between research and its application are to be forged. This is the broad base.

Last, but not least, a necessary condition for strengthening the links between educational research and educational practice is the whole issue of national research capacity (Omari, 1980a, 1980b). A society's capacity for educational research can be characterized as the extent to which it is able to effectively use relevant research inputs, generate, conduct, evaluate and use educational research, and the ability to maintain and periodically renew research skills, research mentality and research climate. This is particularly crucial in developing countries. As Berthlot and Fossi (1980) observed, here in developing countries, there is, in many of them, insufficient development of high quality relevant graduate training programmes in education. Thus there is a lack of the "critical mass" necessary for effective research and its application. In effect educational administrators often very rightly complain that research reports have inadequate conceptualizations and inconclusive findings, suggesting that the quality of research, both in theory, method and presentation, need to be improved.

In developing countries there is also the lack of an adequate general research infrastructure in terms of up-to-date libraries, documentation centres, information systems on ongoing research, journals, translation and reproduction facilities, data banks, and simple statistical processing facilities. Thus sometimes researchers are frustrated and overwhelmed by the disproportion between resources and problems needing investigation. Related to this, and due to competing demands on scarce resources, there is lack of financial support necessary for educational research and training. Thus, most research topics mirror the themes that reflect the concerns of the academic community in the metropole, which through financial support and being the supposed custodian for academic recognition, directly or indirectly determine the choice of studies and their content in the peripheral countries. It is thus not surprising that more than half of the research reports are never read. Offices become museums for research reports.

Conclusion

In the traditional mode of research dissemination and diffusion, Unesco and other international agencies use regional and international conferences, advisory missions, pooling of expert knowledge, and compilation and analyses of statistical data to get the message across to consumers. National research agencies do either independent or commissioned research and then sell the end products to the consumers either in public and/or private meetings, or by depositing a copy of the research report in the consumer's office, which is often never read if at all noticed. Current developments emphasize researchers-users seminars where significant research findings are discussed. While this is a development in the right direction, it is not enough to ensure continuous dialogue between researchers and consumers of research. It is suggested that besides improving the quality of research and manner of reporting, and creating a research mentality and climate among potential consumers, researchers need to develop multiple roles so as to be able to act in consulting situations, policy-making situations, administrative decision-making situations and in arbitration situations. This may be an impossible demand but the creation of joint researcher-consumer research teams to conceive and investigate significant research issues seems to be a good beginning. A balance has to be maintained however between scientific intervention and social activist partisan intervention.

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Methodological notes on participatory research in education: an experiment in establishing links between theory and practice

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It is common knowledge that one of the difficulties which arise in regard to the relationship between researchers and practitioners in the different fields of education is due to the fact that the two groups use different "reference codes" to explain educational phenomena and decide what solutions should be adopted. The first group refers to interdisciplinary structures of which practitioners are quite often unaware and which sometimes lead to findings that are not of much use in practical work; the second group does not always find "keys to the interpretation" of a problem, either because they use analytical models of an altogether different kind, or because they rely solely on "common sense". In such cases, communication between the two types of work proves difficult and often unproductive for both researchers and practitioners.

There are many ways of bridging the gap thus created between theoretical formulations of principles and practical difficulties encountered in everyday work.

The purpose of these notes is to draw attention to one of these ways which seems to be of outstanding interest both at the scientific level and at the level of education policies, assuming that the right choices are made at the institutional level, especially as regards the training of researchers, on the one hand, and that of practitioners on the other.

The reason why the two points of view do not meet is that there is no common ground, at the level of analysis, between their codes of interpretation and their languages. The level of analysis at which, according to Hempel, the threads are spun which tie the skies of theory to the earth of practice, is a methodological level: it is the bridge between the two banks in that it partakes both of theory and of practice: it is based on a theory, but it does not expound that theory; it shows us a path to follow, but it is not the path.

It emerges from this analysis, then, that it would be extremely productive from the point of view of educational innovation to pool all available energies and resources so that researchers and practitioners, taking as their respective starting-points their own skills, experience and requirements, may make a joint effort to work out methodological models by considering educational action from all its many aspects.

It goes without saying that, through this co-operative and interdisciplinary work, the professional competence and social function both of researchers and of practitioners are enhanced and strengthened. By taking as their point of departure the examination of theoretical-practical questions bearing specifically on methodological problems, the former are enabled to propose less abstract and less detached theories (having avoided the risk, which has always existed in the history of educational thought, of taking an excessively "intellectualized" and "rationalized" approach to existing realities), and the latter benefit from possibilities for more searching analysis and from more productive "criteria" for action which are closely attuned to realities and are, at the same time, capable of influencing decisions regarding their transformation.

There exists a particular branch of studies and experimentation which has expanded to a remarkable degree over the last few years and which seeks, among other things, to answer the aforementioned questions. It is concerned with the methodology of participatory research in education.

The International Council of Adult Education in Toronto has made this the subject of one of its projects. It was officially launched in September 1977 and has been gradually developed through the study of experiments in participatory research, which have then been compared with each other at regional and inter-regional seminars. The last seminar organized by ICAE and Unesco, which took stock of the progress of the project, was held in Yugoslavia at the International Centre for Public Enterprises in Developing Countries (Ljubljana, 13-22 April 1980). Full details may be obtained by referring to the documents prepared by ICAE during the various phases in the development of the project.

The Institute of Education of the University of Naples is participating in the ICAE project by contributing reports on experimental work which began in 1975. This experimental work has led to the following observations concerning the methodology of participatory research in education.

1. The problem

There is no educational research (by comparison with all other types of scientific research) nor training activity (by comparison with any other type of activity) which is not faced, initially, with problems that have to be solved, whether it be concerned with educational programming, curricula, teaching methods or any other aspect of the development of education.

In participatory research, the relationship between the researcher and the practitioner is established from the outset, in other words, as soon as they are confronted with a problem. While the practitioner, who is placed at the heart of a given situation, has the task of explaining it even though he is unable, at first to do so in clear and precise terms, the researcher, who observes the same situation from the outside, has a duty to develop all the essential techniques for ensuring that the problem emerges, with its own specific characteristics, from the concrete experience of those who have to solve it.

> Let us consider a fairly typical example of what happens in the sphere of participatory research applied to teaching. The teachers (who, in this case, are acting as "educational researchers") are wondering how they can use the content of the local culture of a group of students in order to help them master a basic knowledge of certain disciplines. In the beginning they do not talk about the subject-matter of their lessons but ask the group of students to describe the day-to-day problems encountered in their environment and then to single out the one which they consider to be the most important in the prevailing circumstances and the most in need of elucidation through their acquisition of profounder knowledge. This first stage may be described as that of the individualization of "local educational demand".

2. The analysis

Once the problem to be solved in one of the fields of education has been defined, the tandem consisting of the researcher and the practitioner has to tackle the task of analysing it, proceeding gradually from a detailed and methodically constructed description of its empirical phenomenology (with which the practitioner is familiar because he has first-hand experience of the problem) to its interpretation from points of view that are impartial and have a general significance (these being due to the work done by the researcher thanks to his scientific qualifications).

It is at this second level of the participatory inquiry that the true "experience-qualifications" exchange begins between those who have been responsible for the practical stage and the theoretical stage respectively, thus giving rise to that osmosis of the contributions made by the two groups which develops further in the following stages.

> To return to the foregoing example, the aim at this point is to arrive at a detailed definition of the "educational demand" with a view to preparing "interdisciplinary educational responses". The teachers ask the group of students to look at the problem very closely in order to pick out its interesting aspects. At the same time, they take care - each one proceeding from the standpoint of the subject he teaches - to seize on those aspects of local conditions which can be better explained by providing knowledge of a monodisciplinary type, for it is obvious that the transition from "ordinary knowledge" to "scientific knowledge" is achieved through the student's specialization in a particular area of the whole field of knowledge.

3. The hypothesis

It is now possible, on the basis of the theoretical explanations offered from the scientific standpoint for the purposes of the analysis of the problem to be considered, to formulate concrete hypotheses to solve the problem itself. In this phase, collaboration between researchers and practitioners should be considered to be a prerequisite for arriving at operational proposals which are certain to be both attuned to realities and capable of helping to transform it in a rational manner.

Experience has shown that, once this stage has been reached, the encounter between theory and practice, through collaboration of this type, results in a two-way communication system, with a continual exchange of functions. The researcher adopts the realistic standpoint of the practitioner, thereby improving the relevance of his theoretical proposals, and the practitioner considers concrete facts from a more rigorous standpoint, thereby improving his practical work.

> Once the monodisciplinary codes for the interpretation of the problem presented by the group work of the teachers and students have been individualized, "teaching units for interdisciplinary research" are developed. These units are organized by using, on the one hand, the indications as to methodology and content provided by the structure of each discipline involved in the programme and, on the other, the educational levels and content indicated at the beginning by the students.

4. Testing the hypothesis

The fact that provision has been made for a work programme jointly established by researchers and practitioners in order to solve the problem does not mean that the problem in question can be automatically solved once action has been taken. It is necessary to put to the test, in the practical context of work, the programme which, while meeting the requisite conditions for ensuring that it is attuned to realities (in so far as it has been formulated both by "theoreticians" and by "practitioners"), may prove - in the end - to be still inadequate as regards its relevance to the new concrete situation generated by its implementation. In this case, it is the action taken to that end which is in itself a test of the theories of the researcher or the practices of the teacher: both are the subject of a systematic evaluation in terms of the concrete questions that emerge from the work of solving the problem: and the problem, in its turn, will not be solved unless researchers and practitioners alike are able to adjust to this more general cyclical programme for the reciprocal monitoring of action and reflection.

In the case of the "teaching units suited to local needs and to the structures of the various disciplines", this means that the proponents of the teaching approach based on the methodology of participatory research are not content simply to implement the programme, relying on the automatic ratification of the results obtained, even though it has been prepared on the basis of collaboration between teachers and students, but that they continue to make use of the rational means of testing the initial educational hypothesis either to bring it more closely into line with the resulting educational reality or to adapt it better to the task of attaining higher standards.

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Instructional design for complex technologies: The challenges for research

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A great deal of instruction takes place not on a direct, teacher-to-student basis, or in a hands-on laboratory, but through intervening technologies - through films, radio, television, magazines, newspapers, and more recently, computers. Variations in the quality of these educational materials are enormous. The result all too often is poor instructional productivity: time spent in learning is less fruitful than it might be. Moreover, learning tasks often are unnecessarily frustrating because they are poorly organized, poorly individualized, or presented in dull uniformity. One answer is to employ a higher level of creative editorial talent in the design of educational materials. Another, the chief subject of this paper, is to employ specialists in research on the design of educational materials. Research to improve instructional design is a growing area of specialization, and because its foremost practitioners are dedicated specialists, the field promises to lead to improved quality of educational materials.

Courses in the design of instruction, including message design for radio and television, are increasingly available in the U.S., in such university departments as education, psychology and communications, and they are popular. As the field matures, important trends are seen. For instance, instructional designers today, as compared with those of only ten or twenty years ago, are less single-minded and doctrinaire in their adherence to the principles of learning psychology, and are more ecletic, more prone to invent practical solutions on the spot, and more prone to incorporate principles of personality, social psychology, perception and cognition. Design teams are increasingly prevalent, wherein diversely specialized individuals pool their expertise. Among these fields of specialization is that of formative research.

By definition, formative research consists of the use of empirical data to improve a communication during the course of its creation. The communication may be one that is designed to instruct, to inform, or to persuade. Formative research sometimes is distinguished from summative research, which consists of follow-up testing to assess the impact of a completed course or system of instruction. In its typical application, formative research consists of (1) a preproduction phase, wherein pertinent background data are assembled relating to the social and intellectual characteristics of the learners, and to their achievements, attitudes and beliefs, and motivational status in the given field of instruction; and (2) a phase of prototype or pilot testing, wherein preliminary versions of the methods and materials are tried out on learners, and the results are used to help guide revisions.

Historically, within the U.S., the trend toward the use of formative research has a number of antecedents. In part, it reflects a fundamental philosophic shift from an approach which places most of the responsibility for the learning upon the learner, to one which places the responsibility chiefly on the side of the educational system. It has its roots also in the traditions of universal education and intelligence testing, and the resulting practice of gearing instruction to the abilities of the individual learner. This growing tradition is particularly appropriate where there is a need for external motivation, and for clear structure in the subject-matter and in the instructional transaction. Accordingly, it is a tradition that is particularly suitable in the instruction of young children and individuals who are experiencing learning difficulty.

The methods and objectives of formative research are in some respects similar to those involved in more traditional areas of educational research, and in other respects often quite dissimilar. For example, formative research typically is supported for the sole purpose of helping to improve a particular educational product. Attempts to derive broadly generalizable principles often are either incidental or very much subordinated to this mandate. The goal of the research usually - but not always - is more to provide a rich range of creative suggestions for the improvement of the educational product or practice, than to produce strictly validated or replicable results. Formative research on instructional systems often focuses on the specific elements of the presentation responsible for its intelligibility, appeal, memorability and capacity to elicit active learner participation, to mention a few. Formative research on motivational or persuasive communications, such as those promoting improved health practices, is concerned with such attributes as the credibility of the presenter and of the informational content of the communication, the perceived usefulness and practicability of the recommended health practice, and the barriers which might have to be surmounted by the recipient in order to implement the practice. In general, formative research can focus on any information that might contribute to the design of more effective communications. This can include information on any or a combination of learner characteristics, both individual and social; characteristics of the medium (or media) of instruction, with emphasis on how the medium is to be programmed; and characteristics of the situations in which the learning, or the application of the learning, is to occur.

Recent major experiments with innovative, instructional applications of television have contributed considerably toward the emergence of formative research as a distinctive field of specialization. Television, including film and animation, affords extraordinary opportunities for imaginative instructional design. Television programmes like Children's Television Workshop's Sesame Street, for pre-schoolers, The Electric Company, for early learners of reading, and 3-2-1 Contact, an introduction to science for intermediate-level children, embody versatile, dynamic formats, and give rise to new principles and applications in instructional design. In some respects even more versatile and malleable are computer-assisted instruction and the computerized, programmable videodisc. These currently much heralded new technologies mean nothing for instruction apart from the opportunities they present for new, more flexible, automated and interactive forms of presentational design. One implication is clear - that as the tools of instruction become increasingly complex, the need for formative research increases. Creative producers of technologically sophisticated instructional materials tend to recognize this need, and most often are strong research advocates.

Practitioners of formative research are well advised to begin with a strong academic background in objective, human research methods, and general background in areas such as thinking, perception, motivation, learning and social processes. Because so much of the work of the formative researcher is qualitative, experience with a medium and its applications can greatly enhance the value of the formative researcher's contribution to the instructional design team. Also, effective team management and a co-operative team spirit are virtually indispensable if the smooth functioning and creative productivity of the team are to be assured.

The increased use of formative research in instructional design and applied communications is beginning to yield a body of general knowledge. This cumulative body of knowledge consists in part of methods for observation and testing. It includes also perspectives on the features in media design which may importantly affect desired outcomes, and rules of thumb concerning the incorporation of these features into the design of communications. These are the important "tricks of the trade" by way of which powerful theoretical effects, involving perception, learning, cognition, motivation, memory and recall, social interaction, and the like, are translatable into applied situations through the combined art and science of media design. In addition, this body of knowledge includes normative data - i.e. a backlog of data with reference to which the strength of performance of a new communication may be assessed. It includes, as well, guidelines for the statement of objectives and for suggestions by which producers might address these objectives through pedagogically sound media forms; guidelines for maintaining effective collaboration amongst the diversely qualified experts on the team; and caveats for helping to avoid expensive mistakes.

Formative research, at its most effective, contributes a balances combination of art and science to the process of instructional design.

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The Romanian system for integrating education research and educational practice

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We have taken great interest in the models proposed in the reference document, that is to say, the decision-driven model, the knowledge-driven model, the general enlightenment model and the social interaction model. The various aspects of the relationship between research and practice were isolated from each other in this document presumably in order to highlight particular characteristics of their pattern of interaction. In actual fact these aspects are bound up with one another in a single, complex, global and dynamic model, being closely interlinked in all types of research. The different types of basic or applied research are not rigidly separated; on the contrary, they penetrate each other, being complementary in one way or another.

Basic research determines the quality of the theoretical work and the efficiency of the practical application of every kind of research and, at the same time, all well-designed applied research widens the horizon of theoretical work and poses new basic problems. As the academician Mr Radu Voinea, Rector of the Polytechnic Institute of Bucharest, has said so judiciously, "successful research begins with one problem and one question and ends with many questions and a considerably larger number of problems to solve". This relationship between the basic and applied aspects of research reflects the extremely varied, complex, rich, and at the same time unique, character of the phenomenon and reality of education.

1. The successful application of research findings to practice depends on the way in which the study itself is designed and on its intrinsic quality

It is not, then, as is sometimes thought, the action of dissemination which is the most decisive factor in the successful application of research findings, but the actual content and explicit goals of the research. This leads us to consider (1) a typology of research products and (2) the factors and means which are used for turning them to good account.

2. Social and educational effectiveness must be strictly centred on priority objectives, with due regard for the true needs of education. In full agreement with Getzels who asserts that "the significant impact of research comes not piecemeal, study by study, technique by technique, practice by practice. It comes cumulatively". We think that the dissemination and application of research findings, as well as their social and educational effectiveness, must be structured in accordance with an appropriate strategy involving the phasing and convergence of efforts. All the factors brought into play in the various stages of the design-research-application process must contribute to the implementation of such a strategy.

It is from this standpoint that we propose to examine the alleged "paradox of educational research". I do not intend here to go over the paradoxes of a "scientific revolution" suggested by Th. Kalon. This paradox of educational research, which is characterized by the specific relationship between the social demand for research and the development of research itself and its various patterns of evolution in relation to the field of technology, will, for example, highlight the following aspect: while the ratio between the social demand for research in technology and the actual development of research in that field tends to remain fairly constant, the same ratio in the field of educational research is gradually increasing (the demand for research in education is growing far more substantially and rapidly than the effective development of research).

To explain this phenomenon, it is necessary to undertake a comparative analysis of these two fields. This will bring out the causes, conditions and obstacles which affect efforts to turn the findings of educational research to good account. It will also bring out the measures that can be taken to improve this situation. The main features of technological research today are as follows:

(a) the rule that research undertaken in a given problem area must strictly respect the constraints imposed at any particular time by the rate of technological progress;

(b) the operational character of implementation;

(c) the high degree of social effectiveness;

(d) the reduction of the time devoted to the design-research-application cycle and the possibility of using the research findings as soon as they are established;

(e) the attainment of optimum effectiveness by making better use of all the available resources;

(f) a dynamic approach to the adaptation of research to the requirements of innovative practice;

(g) the maximum commitment of researchers;

(h) the well-planned organization and development of the material and technical facilities for research;

(i) the establishment of a broad field of experimentation and application;

(j) the continuing evaluation of the various stages of research work by the directors of projects.

In our opinion, the obstacles that give rise to the aforementioned paradox can be found in one of the following fields: the nature of the research itself; relations with decision-makers; relations with pre-service and in-service teacher-training institutions. We think that educational research workers are just as capable as technological research workers of determining the optimum forms of action in this field and of influencing strategy and practice. Moreover, this is confirmed by our National Institute which, in the last few years, has achieved significant results in this field, with the support of the Ministry of Education and Teaching and the Academy of Social and Political Sciences. The main objectives towards which we have directed our efforts are as follows:

- a more explicit and concrete alignment of research with the current needs of education (for instance: the dissemination of a few modern educational technologies; the improvement of educational and vocational guidance; a new system for evaluating the quality of the activity of teachers and of teaching units, etc.);

- an enhancement of the importance of prospective studies;

- the operational transfer of research findings to educational practice (multimedia complexes, evaluation scales in primary education);

- the concentration of the research potential on priority and interdisciplinary objectives (the Institute's research potential has been concentrated on 7 or 8 topics with 70 participants for a main topic);

- the organization of research on educational spaces;

- the strict application of a complex relational model encompassing the factors involved in the design, conduct and utilization of research in education.

By creating all these conditions, we have enabled great progress to be made in the field of the application of research to educational practice.

The characteristics of the educational research system are shown in diagram No.1, from which it can be seen that the Institute has three functions:

- independent research;

- co-operative research with
  - university professors,
  - inspectorates;

- integrated research which is carried out in experimental and pilot schools by research teams in various educational units.

The research teams working in the educational units also serve to coach students who have enrolled for the first stage of further training (for teachers) which is equivalent to the doctorate (third cycle). The work that the teachers enrolled in that course have to carry out - at quite a high scientific level - and whose themes reflect their own options, makes a notable contribution to educational research. Such work is undertaken by many teachers, numbering tens of thousands. It is not the quantitative aspect that is important (although it contributes to a substantial increase in the research potential); what we are mainly interested in is the qualitative aspect, for the following reasons:

- these investigations are a direct response to the needs of educational practice;

- as the subjects have been freely chosen by the teachers, this work results in a high degree of commitment to innovation, which implies a receptive attitude towards research;

- in the same measure as the professional researchers prove to be perspicacious and technically well qualified, the teacher-researchers display a high degree of creativity and spontaneity in the field of educational research.

The combination and effective utilization of the qualities of both groups - on the one hand, exactness and technical competence, on the other, creativity and operational competence - are beneficial both to science and to educational practice.

As regards university research, university professors working in the field of research, have the following functions:

- carrying out their own research;

- carrying out integrated research;

- carrying out pre-service and in-service teacher-training activities.

This is how the national educational research system has been established. The research undertaken in universities and that conducted by specialized institutes (such as ours) are independent while being complementary and interconnected within an overall plan. We trust that we have thus given an answer to the question of whether or not there exists a parallelism between educational research undertaken in universities and that conducted by specialized institutes. To some extent (in our case, at all events) I think that this "parallelism" is even necessary, because it affords fresh opportunities for developing the theoretical components of knowledge and makes it possible to ensure a kind of confrontation of alternative strategies and appropriate methodologies and a joint effort to apply them. This model also offers the advantage of an interdisciplinary systems approach to the problems studied, even at the cost of some repetition and duplication.

The organizational and educational research model in Romania is designed to secure unity through diversity in the process of making effective use of the findings of research. It contributes in particular to:

- the rational use of skills;
- the diversification of strategies;
- greater discernment in regard to findings;
- a host of possibilities for evaluation, monitoring and improvement.

The main types of products (findings) that can be obtained in the field of educational research are as follows: (1) theoretical conclusions and theses; (2) new research methodologies for innovation and development and solutions to problems concerning the improvement of education, particularly in respect of: (3) curricula; (4) teaching and learning methods; (5) teaching aids; (6) the rationalization of teaching efforts and patterns of educational action; (7) educational spaces; (8) suggestions for education policy; (9) guidelines and recommendations concerning new pedagogical skills of teachers.

Our experience in the matter of linking research and practice may be summed up as follows:

1. Social demands are reflected in the research problems and priorities which are established by the Ministry of Education and Teaching, the Academy of Social and Political Sciences and the Institute of Educational and Psychological Research.

2. The bodies and agents involved in the actual research work include: specialized institutes, institutes of higher education, research units which exist in schools, students reading for doctorates, together with students reading for degrees in education who are preparing to defend a dissertation.

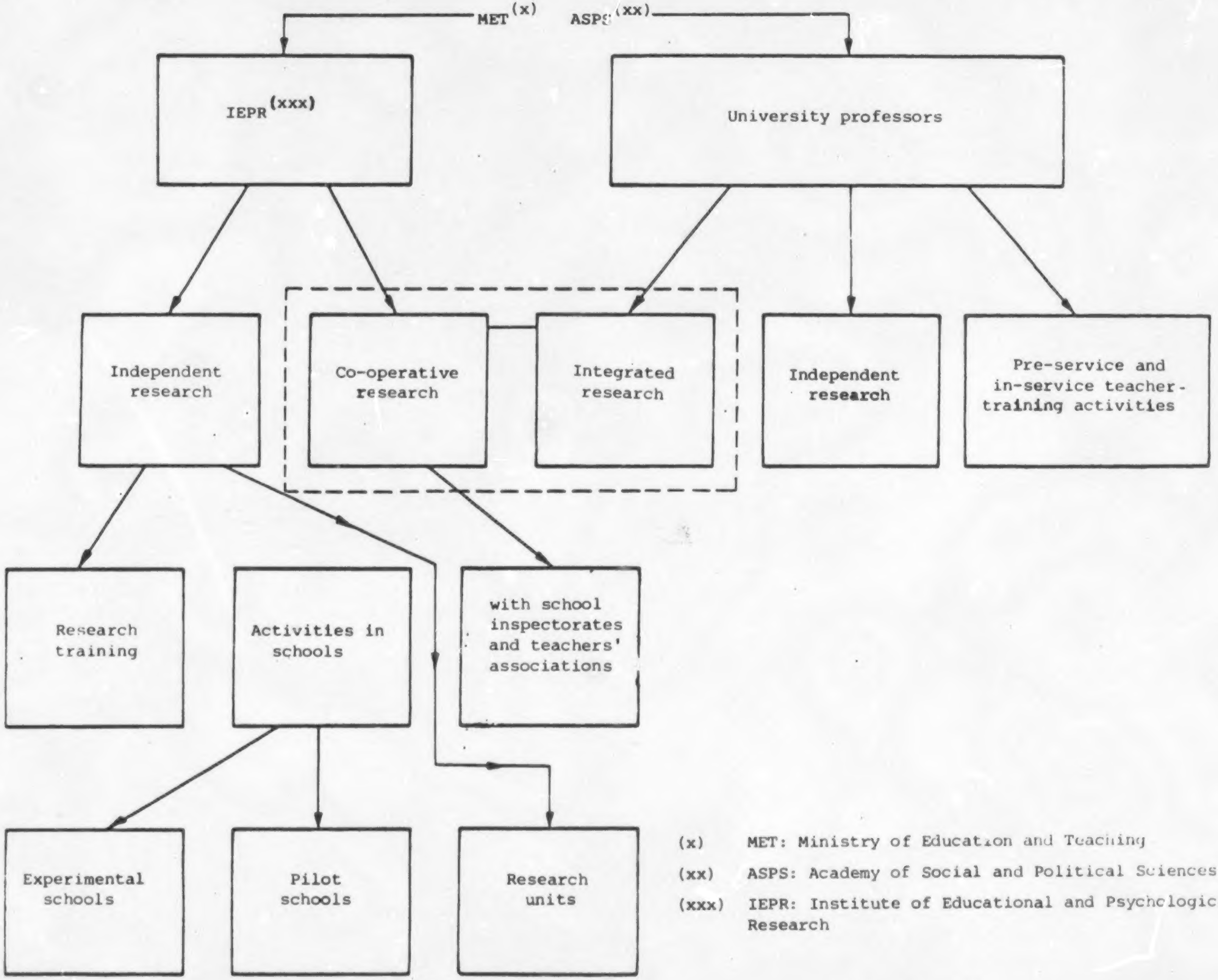
3. The results of the research activities conducted by the above-mentioned bodies and agents are disseminated by the following: (i) the Ministry of Education; (ii) publishing houses, the press; (iii) manufacturers of teaching aids; (iv) school inspectorates; (v) teachers' associations; (vi) teaching units; (vii) pre-service and in-service teacher-training institutes.

4. Findings (the products of research) can thus reach the beneficiaries or users of research, whether they are concerned directly - because they are involved in a decision-making process - or indirectly - because they are interested in using findings for their own training or for that of

The following points are particularly noteworthy in this context:

- the very great number of links between research and practice in education;
- the integrated and flexible character of the dissemination system;
- the united and converging efforts made by the bodies involved in the implementation and application of findings;
- the action taken to multiply the results of research (the 9 types of products may be incorporated into educational practice through the channels of these implementing agencies in more than 25 ways). This may be described as a 'multiplier effect";
- an improvement in their adaptation to extremely varied local situations.

These features offer the system the advantages of convergence of efforts, mobility, adaptability and the capacity for innovation. It goes without saying that this system is not just a rigid mechanism. On the contrary, it takes into consideration the specific needs of teachers, thus securing their creative participation. It is for this reason that educational researchers are able, with the support of teachers' unions, to carry on a lively dialogue with educators by involving them, as far as possible, in the actual process of research.


MET(x)
ASPS(xx)
IEPR(xxx)
University professors
Independent research
Co-operative research
Integrated research
Independent research
Pre-service and in-service teacher-training activities
Research training
Activities in schools
with school inspectorates and teachers' associations
Experimental schools
Pilot schools
Research units

(x)	MET: Ministry of Education and Teaching
(xx)	ASPS: Academy of Social and Political Sciences
(xxx)	IEPR: Institute of Educational and Psychological Research

Diagram No.1: National system for educational research

A Romanian experiment concerning participatory research in adult education and the dissemination of the findings of educational research

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The Council of Culture and Socialist Education is one of the central institutions concerned with establishing a scientific basis for the improvement of educational practice and, in particular, adult education. For several years the Council has been engaged in action-research in the field of education and culture. The study of the possibilities, needs, aspirations and cultural preferences of communities and socio-professional groups, the cultural implications of urbanization, the relationship between tradition and modernity in folk culture, the methodology of educational cultural action, etc., have been the subject of wide-ranging participatory research conducted in all the departments of the country by multidisciplinary groups which benefit from the close co-operation established between researchers, university personnel, students and cultural promotion workers, as well as with local community leaders. At the same time as the research, socio-cultural experiments have been carried out in pilot cultural units, together with a programme of convergent projects bringing into play the various factors contributing to education.

Disagreeing with the old idea that research is used to advantage only by published studies, we are of the opinion that participatory research contributes to consciousness - raising efforts made in the community where it is conducted and gives rise to feedback which helps to ensure that educational processes are appropriate and effective. Of the various ways of turning research to good account, the following are particularly noteworthy: presenting research findings at meetings organized for discussion purposes between educators and local authorities; using research findings in further training courses for teachers and cultural promotion workers; preparing syntheses for education officials; holding scientific meetings; publishing articles in journals; producing publications for circulation to the general public.

Great importance is attached to the identification and removal of obstacles that prevent educational research findings from having a more decisive impact on macro- and micro- education systems. Among such obstacles, attention must be given not only to those which are due to the insufficiently receptive attitude of decision-makers, but also to those which are created by research itself. They consist in the difficulties encountered by efforts to ensure the interdisciplinary character of research in education; the unjustifiable gulf which continues to exist between the university system and applied research; the fact that educational research is concerned exclusively with the teaching process; the unreasonably long delay in introducing modern media into education or in using them in a technologically correct manner, etc.

In the light of our theoretical and practical experience of cultural activity in adult education, we emphasize that education should be viewed in a broader context, and that operational research should be assigned a more important place. Educational research and practice can no longer disregard the ever-increasing, and sometimes vanguard, role of adult education; they must recognize that participation is no longer regarded merely as a matter of policy, but is now a scientific criterion of efficiency. A complex, expressive, flexible, innovative and wide-ranging cultural programme is a factor of great importance for education and not simply a finishing touch to the educational edifice.

We are currently engaged on socio-cultural studies which aim to improve the quality of adult education, particularly by stimulating the creativity of the masses in the field of science and technology, but also in that of culture and art, to increase the formative role of grass-roots adult education and to perfect the methods and techniques employed in adult education.

An important role in the development of the modern scientific spirit in Romania falls to the system for the dissemination, by means of publications, of the findings of scientific research.

The most important works are brought out by publishing houses, either as independent publications or as part of a collection. Thus, the original texts of such works and translations of foreign studies are disseminated by Scientific and Encyclopaedic Publications in the collections "Sociological syntheses", "Psyche" and "Science for all", by Junimea Publications in the collection "Humanitas" and, above all, by Educational and Pedagogical Publications in the collection "Education in the 20th century". Some of the works published in the aforementioned collections have been translated with Unesco's assistance.

An important source of scientific information can be found in the various publications issued by University Centres in the form of curriculum guides. The Institute of Educational and Psychological Research, the Research Centre for Youth Problems and other institutions concerned with education periodically publish the findings of various studies and issue reviews or summaries of documentary material.

The journals entitled "The future of society", "The socialist era", "Educational Review" and "School tribune", as well as the journal aimed at cultural promotion workers, present summaries of the findings of certain educational research projects, discussions on particular themes, opinions or even substantive contributions covering a wide range of current educational problems. Some syntheses are published at the regional level by teachers' associations or by committees for culture and socialist education.

The Central State Library, the Central Education Library and the Central University Library periodically publish bibliographies, documentary syntheses, curriculum guides and miscellanies.

All these publications are distributed by the various ministries and may be obtained by individual users through the channels of in-service training centres.

As regards international co-operation in the field of education, we wish to lay stress on the great contribution made by the National Commission for Unesco and by certain foreign libraries in Bucharest (French, Italian, etc.) to the dissemination of information on current trends in education.

Some trends and characteristics of educational research in Colombia

by José B. Toro
Augustin Lombara

RESUME

The document proposes:

1. to give a global view of the phenomenon of educational research in Colombia; and

2. to put forward a set of interpretations in the light of available information.

The authors respond to questions such as:

1. Who takes care of distribution and what has been produced

2. Where can institutionalized studies be found

3. What field does this production cover

4. How is it divided into topics

5. How is dissemination carried out

6. What can be said about statistics

The empirical information contained in the document is taken from a more extensive study carried out by the same authors in 1978, "The phenomenon of educational research in Colombia (1960-1978); some trends and characteristics", Bogotá (1978).

This contains an analysis of 238 reports produced between 1968 and 1978.

Different bibliographies are also included and there is a list of institutions where reports can be found. For these lists, the inventories of the ICOLPE and the bibliographies of the Documentation Centre of the National University were particularly useful.

For the analysis of the reports, an instrument divided into five categories, grouping together 27 variables was established.

1. General aspects, including date of publication, language field of study etc.

2. Field, including non-formal education, adult education, levels of system etc.

3. By topic - main topic, secondary topic, tertiary topic, teaching-learning process etc.

4. Disciplinary approach

5. Methodology and description, grouping the research proposal, description and statistical level.

I. Distribution of the reports

The increase in educational research in the different countries of Latin America became significant at the end of the sixties.

Educational production in Colombia seems to follow the trends of that in Latin America as a whole.

An analysis by biennium of educational production shows a significant increase since 1968. During this period, there was the creation of:

(a) Colombian Fund for Scientific Research and special projects, Francisco José de Caldas (COLCIENCIAS).

(b) The Colombian Institute for Development of Higher Education (ICFES).

(c) The Colombian Institute of Pedagogy (ILCOPE) (this institute was closed down eight years after its inception).

(d) the first postgraduate courses in education at the University of Antioquia (1967).

II. Procedures of educational research

The following questions were raised on this topic:

- Is it the public or the private sector which is most concerned with educational research?
- What is the level of production at the University?
- Is production centralized - where - and with what goals?

Official, non-university production, represents 42.4 per cent. An increase in the number of private centres has been observed since 1973, showing that official production has moved out of the central bodies (Ministries) to decentralized organizations.

1968 was the key year for increases in educational research because:

(a) university production was initiated;

(b) there was a process of decentralization not only for the origin, but also the type of problems to be dealt with.

There is a noticeable trend for results of studies to be generalized at the national level, without, however, completely forgetting the regional, departmental or municipal level.

III. Where should research be carried out? The speciality of the researcher

Very many educators and sociologists have become dedicated to research. It is interesting to note the variety of specialists interested by educational research, such as psychologists, economists, demographers, doctors, lawyers, anthropologists, philosophers, etc.

IV. Fields covered by the reports

By field we mean the level or sector of population which an educational system hopes to reach. To organize it, governments define what attention will be given according to different criteria: educational level (formal) type of education (rural, technical) with reference to specific groups (adults, children with problems). It can be said that the classification of the field has a normative origin whilst the governments define it. Studies in Colombia have concentrated on the variable "levels of the system" - 73.5 per cent - and this shows the importance that the government gives to primary education according to what needs to be dealt with. In contrast to this emphasis, special education is not studied at all.

Special education has no priority with researchers or with governments. It seems that this is a field to which the government will give attention only after a certain level of development has been reached.

The trends in Colombia in pre-school education, university education and special education tend to be the same as those at the Latin American level. This can be seen from the following rates of scholarity:

Pre-school	2.6
Basic	68.5
Secondary	34.9
University	5.8

V. Topics

Administration and control is the main theme with 38.2 per cent which suggests to us that educational research is oriented preferably towards understanding of problems which are ordinarily raised in implementing the educational system. Education and society takes second place as a theme of study. This state shows the existence of preoccupations with identifying changes and reforms which the system requires if it is to meet the needs of the environment.

The number of studies in "Process of teaching-learning and its institutional procedure" shows that this has been found to be an attractive topic by the Ministries, the official university and by centres and private institutions. It seems that the class itself continues to be the focal point of interest for researchers.

VI. Dissemination of results of educational research

According to the studies carried out by specialists, 77 per cent of production has little possibility of circulating widely and for long periods. Photocopies or mimeographed documents are ephemeral forms of publication and cannot be reproduced in large numbers and easily lose impact for potential readers.

There is a very low percentage of publication in journals and this confirms the little contact that researchers have with editors of periodicals. In addition, there are only a limited number of educational journals publishing articles or reports on research.

It seems that books (with their many editorial difficulties) are much preferred by researchers.

In relative terms, the medical profession appears more preoccupied with having wider dissemination of their work. Educationalists and sociologists publish only about 20-33 per cent of their work.

Besides the thematic point of view in absolute terms, it seems that the Administration and Control has best dissemination with Education and Society in second place. A relationship can be established between the volume of production and the form the publication takes, vocational topics seeming to have encountered much better methods of dissemination. This data is very limited because this is a topic which has only appeared recently.

In conjunction with this, it seems that no editor, specialist or institution understands dissemination adequately.

VIII. Educational research from the point of view of its propositions, its description and statistical level

Experience has shown that more than half of the studies give descriptive propositions. What is interesting to note is that evaluative studies are on the increase. Other analyses show that these proposals have increased continually over the last few years. The same analyses suggest that research proposals have become more sophisticated with time.

Educators and sociologists also seem interested by descriptive and evaluative proposals. Proportionally there are not enough relevant trends in all specialities; they do not all have explicative proposals.

Trends in proposals by institutions are also being explored: only some have been annotated. Official bodies do not have explanatory studies, they prefer the prospective and evaluative aspects. It could be thought that decisions are taken according to criteria of urgency, rather than the quality of decisions.

Another form of exploring the level of training of researchers could be the type of studies. It can be noted that almost 50 per cent of plans for study remain at the planning stage.

It can be seen that 26 per cent of studies requiring very refined knowledgeable research have been undertaken since 1968; as of 1970, experimental and quasi-experimental studies have been made.

The statistical level of reports has undergone analysis in different studies according to the supposition that major or minor refinements in data processing reflect in some way the levels of training of researchers and their studies.

Since 1968, there has been more complete statistical data. The contributions of other specialists are relevant in this respect.

An examination of the statistical level and the institutional procedure of reports shows that more or less one-third of official work contains complete statistical data. It can be confirmed that this emphasis stems from the 1970s. Data has become of increasing interest in dealing with problems of better knowledge, on the part of the official sector.

Universities also seem to be in favour of using trends and percentages and other statistical data, the private university being more favoured in this respect. It is to be noted that private centres make more use of trends and percentages.

Since 1968, educational research has become more sophisticated in its proposals, as have statistical tools. This enables us to confirm that this fact has helped improve the levels of qualification of researchers in these fields.

Finally, even if we cannot speak of a cause-effect relationship, we know that there are other intervening variables, trends of educational research in Colombia undergoing quantitative and qualitative variations as of 1968. These variations can be resumed as follows:

(a) a considerable increase in production;

(b) decentralization of production and increase of breadth of studies;

(c) participation of the university in educational research;

(d) preoccupation with looking into the relationships between the educational system and society, difficulties in the teaching-learning process and training of teachers;

(e) the appearance of research proposals and more complete use of statistics.

The authors of the work "Some trends and characteristics of research in Education in Colombia" conclude that the social nature of scientific knowledge permits us to think that its increase and orientation are not independent of the facilities or obstacles which are offered by specific societies. Facilities which society creates can show different perspectives: creation of institutions which strengthen the continuity and quality of scientific activity, assigning adequate resources, training researchers, recognition and use of their work, evaluation and assessment and orientation of decisions, participation in conferences and motivations of various types.

What can be said is that each society has specific ways of understanding and defining what is needed to promote scientific development. However, whatever way if chosen, if there is no suitable adequation of the social context in accordance with scientific activity, many difficulties will be encountered in development.

Prerequisites for the establishment of a mechanism capable of linking research and practice in education

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Univeristy professor
Romania

This paper deals with a problem which, though limited in relation to the agenda, is important and complex, namely, how can communication between research and educational practice be improved? In other words, what mechanism (or strategy) could speed up the application of educational research findings to the learning process? What can be done, on the one hand, to encourage spontaneous innovation and, on the other, to remove obstacles and discrepancies between research and practice in education?

While we shall dwell mainly in this paper on what is known as applied research, we shall not lose sight of the fact that any reform is motivated by a particular philosophy of education and that this is expressed in terms of educational aims and objectives, thereby exercising an influence on educators.

I. The problem

1. The increasingly prominent role played by education in the development of contemporary societies and the new dimensions of education systems led most countries, after the Second World War, to step up research in education (or educational research). Virtually all developing countries have set up national institutes for educational research or centres for curriculum development (Vaideanu, 1979, 15, p. 54). In socialist countries there exist academies of pedagogical sciences (USSR and GDR) or national institutes of research in educational psychology.(1) The old educational research laboratories or institutes of developed countries and the faculties of educational psychology (De Landsheere, 1979, 5, pp. 8-10) have become, if not bigger, at least more active or more important from the national and/or international point of view.

2. Unesco, in its turn, as an intergovernmental organization whose programme assigns a prominent place to education and educational research, fosters the flow of information and the exchange of experience concerning educational reforms which are based on the findings of educational research. The hundreds of requests for educational expertise received during each biennium by Unesco prove that education authorities are taking more interest in the experience of other countries and in the results of research work. Unesco has become one of the main nerve centres for the dissemination of research findings and for exchanges of information regarding educational innovations or reforms. Furthermore, the establishment after the Second World War of numerous non-governmental organizations qualified to deal with educational matters shows not only that researchers and educators wanted and needed to communicate with each other, but also that efforts were being made to develop reflection and applied research in education.

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(1) In Romania, the Institute of Research in Education (which has now become the Institute of Research in Educational Psychology) was established in 1951.

3. In order that our problem may be clearly defined, two categories of facts must be taken into consideration. One category concerns research and the other its relations with decision-making and educational practice.

(a) The expansion of research

From the beginnings of experimental research (W. Wundt set up the very first institute of psychology in Leipzig in 1879 and J. Dewey opened the experimental school of the University of Chicago in 1896) up to the present time a substantial number of useful or not easily refuted findings have been obtained by researchers in education.

In accordance with the troubled history of contemporary philosophy, the philosophy of education has placed at the centre of its concerns the problems of man and the contemporary world, which are of the greatest interest to educators.

The rapid studies made by research in every field and the promotion of interdisciplinary approaches have led to the establishment of new areas of research which are important both for decision-makers and for educators: prospective studies in education, the technology of learning, the economics of education, educational axiology, etc.

Although financial and intellectual investments in educational research have not yet become satisfactory, they are at least increasing.

Research management and policy, which were neglected for some time, are beginning to attract the attention of specialists. The status of research and of researchers, the relations between research, decision-making and educational practice, the evaluation of research findings and their application to the learning process, etc., are proving to be complicated problems: those engaged in research must study and improve its status and methodologies in order to make it more useful.

(b) The relations between research, on the one hand, and decision-making and educational practice, on the other, are far from being those desired both by researchers and by decision-makers and educators. We shall consider what certain specialists have to say on this point, but it must first be made clear that the following statements should not be regarded as the expression of transitory conflicts or particular ambitions but as the consequence of the evolution of three types of activity (research, decision-making, educational practice) directly concerned with the quality of education, on the one hand, and with the expectations and demands of society (of each national community), on the other. We have singled out these three types of activity because in most situations, even in decentralized systems, the application to the learning process of a research finding that entails a major change, depends on a decision or on the implementation of a coherent set of measures.

A. Yates, who has participated in two European meetings on educational research organized by Unesco (in 1967 and ten years later in 1976) and who is the author of The Role of Research in Educational Change, makes a statement which is of general significance: "To be able to report that educational research is flourishing and that rapid change is prevalent would seem to indicate a healthy state of affairs. It suggests a rationally ordered system within which research leads to relevant change and, in its turn, change serves to stimulate further research. There is, unfortunately, little evidence to support such a favourable diagnosis. Instead of a healthy, productive co-operation between researchers and practitioners, their relationship would seem to be characterized by misunderstanding and a certain amount of mutual recrimination... Those who are closely concerned with the organization and direction of educational research are perturbed by the apparent disharmony that at present characterizes the relationships between researchers and practitioners. They recognize that these indications of misunderstanding and distrust represent a threat to the status and prospects of educational research. Although educational research is at present a manifestly thriving activity enjoying a higher level of financial support than at any previous time in its history it must be admitted that a good deal of the aid that it is now receiving is based as much on faith in its potentialities as on recognition of its past accomplishments. In most countries educational research now occupies a position comparable to that of a relatively new industry which, because it shows promise, has attracted a satisfactory level of investment but which is required to show adequate returns if this level is to be maintained" (Yates, 1976, p. 1).

G. Carron, who prepared the working paper for the symposium organized by IIEP and Unesco on the relations between research and decision-making, writes: "Serious problems of communication between researchers and decision-makers exist practically everywhere. Researchers complain that decision-makers do not pay sufficient heed to the results of their work and will often not even take the trouble to find out about its existence. Decision-makers, on the other hand, accuse researchers of supplying them with information which not only is not relevant but, to make matters worse, is couched in terms which are far too sophisticated... What is more, the decision-maker's mistrust of research results may be heightened by the fact that he himself was not the person who commissioned the research" (G. Carron, 1977, pp. 1 and 5).

In an article dealing mainly with the subject of the impact of research on educational practice, G. de Landsheere observes: "In several universities the academic standard of schools of education is low. Most European primary- and secondary-school teachers do not benefit from basic research training and hence are unable to read research reports and to understand their statistical apparatus. In some countries, like Belgium for instance, there are neither national research institutions or foundations nor a network of regional laboratories... Because the dissemination of research findings among administrators and teachers is so unsatisfactory, their impact on educational practice is limited" (G. de Landsheere, 1975, 6, pp. 110 and 111).

An article written by R. Myers to account for his scepticism, contains a passage to the effect that the almost experimental or superficial approach to problems that is characteristic of most so-called educational research and the difficulty of reproducing and multiplying the unmanageable and constantly interacting variables that are brought into play dictate a sceptical attitude (R. Myers, 1975, 11, p. 3).

Referring to the fact that researchers or administrators have had to solve so many problems that they have not had the time to reform research in such a way as to adapt it to its new tasks, I observed in 1970: "Rapidly launched by its own achievements, research soon gained recognition as a decisive factor in social progress, creating a gap between the way in which new scientific knowledge is acquired and the way in which it is organized, developed and turned to good account. In the absence of well-tried modern structures, principles and methods, the recently established or emerging field of scientific research management has been content to accept certain standards which sometimes come into conflict with the methodology of modern science, the psychology of creative scientists and ideas of flexibility, productivity and feedback" (Vaideanu, 1970, p. 42).

4. We see, then, that there are misunderstandings and discrepancies between research and educational practice or between research and decision-making. In

order to establish continuous and effective communication, many obstacles have to be overcome and many gaps have to be filled. We shall deal with these in the next section. It should not be forgotten that even though these three types of activity are directly concerned with the same social reality, the pressures exercised on education are perceived in a different way by researchers, decision-makers or administrators and by educators. In addition, each of these factors is associated with a rather different approach to the present status of education and, in particular, to the future of education and to education for the future. Decision-makers are obliged to react promptly to the pressure of current problems; researchers are obliged to check their hypotheses very patiently and analyse their findings in the light of prospective studies on education. Decision-makers act or should act in accordance with the general interests of the community; researchers, in order to be productive, start their work on the basis of their technical interests and their own social and educational experience.

5. In order to take a further step towards a possible solution, we must realize that, in reality, we are not faced with an unsurmountable barrier or refusal to communicate. The process of transferring research findings (frequently produced by researchers in collaboration with educators) has been going on at the level of educational practice or of decision-making for decades - slowly but continuously, and with positive effects. "We have known since Piaget", writes the Belgian educationist, L. d'Hainaut, "that intellectual skills are acquired in a relatively well-defined order and the work of psychologists and educationists also helps us to adjust content better to the motivations and affective reactions of a given population group". Lastly, some educational research has provided answers (often implicitly) to questions raised by the changing pattern of ideas and of society. Thus the work carried out by Bloom on educational objectives (1956) and by J. Guilford (1967) on the factors of intelligence and, in particular, on divergent thinking have had a very great influence on most curricula" (L. d'Hainaut, 1979, 7, p. 41). The very simple and yet fundamental idea put forward by B. Bloom and his associates (B. Bloom, 2) has, after twenty years, become a real working tool for specialists in curriculum development or the writing of textbooks, decision-makers and educators. Everyone or practically everyone now knows that it is necessary to start by determining the goals and objectives of education; it is then possible, in the light of those goals and objectives, to select and organize content, establish learning and evaluation methods, etc. Everyone is beginning to understand that the effectiveness of the learning-teaching process depends largely on the coherence of the curriculum (objectives-content-learning methods-evaluation methods). It can be argued that a time-lag of twenty years is too long. But would it not be more to the point to say that educational practice (curricula and learning methods, teaching style and instructional materials, etc.) cannot be transformed in the same way as one would change a technological production line in an industrial plant? An optimistic interpretation is a realistic one.

II. What can be done to improve the links between research and educational practice?

There is some communication between research, decision-making and educational practice, and efforts are also made to transfer research findings. However, such communication is episodic, incomplete and often impaired by obstructions or conflicts. What can be done to introduce a mechanism or a strategy capable of making good use of the findings yielded by research and, furthermore, of involving research in the preparation (design), analysis (verification) and implementation of a reform of education consonant with its potentialities and specific resources? Situations differ a great deal from one country to another. In some countries there is a need to improve what exists (a committee, a methodology, a strategy, etc.); in others it is necessary to set up an appropriate, flexible structure with a clearly-defined status which is capable of establishing a sound system of communication between all types of activity concerned with educational reform and, in particular, between research, decision-making and educational practice.

1. Defining the nature of the problem. Incorporating a research finding into educational practice means, in effect, promoting a new educational value and, consequently, transforming not only a particular component of the education system, but also a context: the mentality of pupils and parents, school life, the style of teaching, etc. Hence it is necessary to provide information and training and secure the support of educators for educational innovation; they must then be helped to introduce gradually and systematically the new method or technique into their teaching while evaluating its performance and making the necessary adjustments. This has several consequences:

- It is still necessary to inform educators about a particular result by providing them with documents and films, for instance, but it is not enough; if they are to modify their teaching system, they need to try out new methods and conduct practical experiments. Pilot schools and practice schools distributed among all the regions of a country are indispensable.

- The time for introducing an important innovation into educational practice is not chosen by the researcher himself: "More often than not the findings of psychological and educational research are integrated into educational practice only in so far as they converge or, at least, are compatible with the ideas, convictions and values which, at a given moment, underlie the philosophy of education and determine the thrust of education policy" (d'Hainaut, 7, p. 41).

2. Identifying obstacles and discrepancies. In every country specialists wishing to operate an effective mechanism find that there are obstacles and discrepancies between researchers and educators or between researchers and administrators.

Psychological discrepancies: different attitudes to innovation, varying degrees of emphasis upon the importance of change as compared with continuity, etc.

Educational discrepancies: a different interpretation of new approaches, different attitudes to traditional teaching and to future needs, etc.

Cultural and terminological discrepancies: the fact that researchers do not vary the way in which they present their reports or publications to meet the requirements of the intended readership creates many difficulties; to this must be added the even more regrettable fact that some researchers use a sophisticated vocabulary only to conceal the emptiness of their work or the weakness of their demonstrations.

Gaps in the network for disseminating research findings: the lack of practice schools or documentation centres, etc.

Shortcomings in the methodologies used by researchers, inconsistencies between the efforts made by researchers and educators respectively in the various phases of research work: design, implementation, dissemination, etc.

Gaps in the training of researchers (concerning administrative and economic questions etc.) and in the training of educators (concerning philosophical questions, research methodology, etc.).

3. Compiling an open-ended inventory of the results already produced by research. The compilers of such an inventory will have to establish procedures for:

(a) selecting and arranging the results to be included in their lists;

(b) subjecting certain results to further analysis before presenting them to authorities responsible for education;

(c) establishing correlations between results obtained at the national level and similar results produced elsewhere;

(d) comparing research results and educational needs.

These lists will always be useful not only for decision-makers and administrators but also for researchers and educators. The results in question are those which are calculated to renovate educational practice. It should not be forgotten, when such an inventory is being prepared, that the function of research is not limited to transforming the educational process: through its products (publications, reports, bulletins, films, index cards, etc.) it makes educators and the public aware of new problems, gives rise to discussions, nourishes the cultural life of educational institutions, launches projects on the education of the future, provides the philosophical bases for a new type of education, etc.

4. Reconciling research and educational practice. In order to establish continuous and effective communication between researchers, decision-makers and educators, it is necessary not only to identify obstacles but also to act upon the causes that may create difficulties at any time. We touch here upon the question of education policy and are implicitly faced with the fundamental problem of deciding who can establish an effective mechanism in a centralized or decentralized system. Researchers and educators must participate in the task of working out and establishing a mechanism or strategy of this kind, but the leading role falls to the authorities responsible for education: it is they who ensure that policy in this field is coherent and effective (see, for instance, the solution proposed by G. Vaideanu, 1979, 15, p.59). By its very nature, research has a prospective and constructive dimension. Like reflection or investigation in any other field, research in education has the right, and indeed the duty, to go beyond the level attained at present by practical work, to look boldly into the future and to put forward its hypotheses quite freely. Reconciling research topics and hypotheses with educational needs does not mean suggesting solutions to researchers or asking them to provide arguments in support of measures already taken; on the contrary, it means giving them an opportunity to tackle priority problems, to come into contact with school life and, finally, to get more satisfaction out of their work. Such a reconciliation depends on the implementation of a coherent and relevant programme of measures to be taken at the levels of research, educational practice and decision-making.

(a) In the field of research it is necessary:

to improve the system for recruiting researchers; in principle, a good researcher should start his career as an educator;

to improve the training of researchers, particularly in the field of economics and educational administration;

to provide researchers with opportunities for undergoing periods of special training in educational institutions and administrative services;

to ask researchers to allow educators to be constantly associated in their work at all stages.

(b) At the level of educational practice it is necessary:

to improve the training of educators, particularly in educational psychology and the philosophy of education;

to encourage studies and exchanges of experience relating to classroom work and spontaneous innovation;

to reward educators who take an active part in research, and particularly in the general extension of new approaches to teaching or other educational activities;

to improve the cultural and educational life of educational institutions and induce educators to take a greater interest in the future of education, etc.

(c) At the level of decision-making and administration it is necessary:

to involve administrators in the launching of research projects and in the analysis of the results;

to provide administrators with opportunities for undergoing periods of special training in educational research institutions;

to assist officials and administrators in their activities in regard to the management of education;

to induce administrators to take a greater interest in prospective studies on education, etc.

Decision-makers clearly need to be provided with concise reports set out in such a way as to help them take their decisions. Who should prepare these reports: researchers (many of whom are not accustomed to preparing reports) or the members of the service responsible for operating the mechanism for liaison, co-ordination and the analysis of results? It is difficult to give an answer applicable to all cases.

5. I realize that these suggestions as to what can be done to improve the status of educational research and make its efforts more relevant and more effective cover only some of the problems which have to be solved in the different countries. It is also true that, practically everywhere, there are experiences which deserve to be taken into consideration. In some developing countries - Malaysia and Sri Lanka, Ivory Coast and Cameroon (see, for instance, Bebe-Njoh, 1979, 1) - institutes or national centres are doing a great deal of work on the reform of education. In the USSR and the German Democratic Republic, the academies of pedagogical sciences play an important role in all phases of the educational reform projects that are periodically launched. In Romania, the system of contracts between decision-makers and researchers in educational psychology lays specific obligations both on researchers and on users; it reflects the principle of unity between research, production and education which underlies the organization and orientation of both the education system and the scientific research system. In the Federal Republic of Germany, a commission was set up in 1970 for the purpose of securing effective liaison, in the field of educational research, between the federal authorities and the Länder and to promote research projects (De Landsheere, 1975, 6, p. 114, and Karl Frey, 1977, 8, pp. 207-230). In the United States, the problem of the co-ordination of educational research projects and that of the impact of research are the subject of the concerted efforts of the National Academy of Education, the National Institute of Education and dozens of universities and national associations (see, for instance, Patrick Suppes, 1977, 13). Some members of the staff of research institutions hold pessimistic views and are pressing certain claims but there is no doubt that the United States has some interesting solutions to offer to the problem of linking research and educational practice. All these experiences deserve to be the subject of case-studies and comparative studies.

Unesco has brought us face to face with a number of real and complicated problems which arise in rather different forms in every, or nearly every, country. I am convinced that Unesco can play a specific role in improving the status of research in education and, ultimately, in increasing the impact of research on educational practice.

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The influence of research on educational policy and practice

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If research is to exercise an influence on the decisions made by policy-makers, administrators or teachers the first prerequisite is that the selection of topics for research should be the outcome of a dialogue between the researchers concerned and those who are likely to be involved in the application of the findings that the research is expected to yield.

It is important that any research that is undertaken is both relevant and seen to be relevant to the needs of practitioners. It is not enough, in this regard, that the latter should be invited to suggest broad areas of study or even that they should identify the problems that they are encountering and indicate the priorities amongst them. There needs to be detailed discussion concerning the scope and conduct of any projected research project to ensure that it will furnish the kind of information that the consumers manifestly require.

In the United Kingdom this need has been recognized and, during recent years, a complex network of interrelationships between researchers and practitioners has been established. The major sponsors of policy-related educational research are central government, acting mainly through the Department of Education and Science, and the local education authorities which, in this respect, act co-operatively through their national associations. The principal agencies for the conduct of research are the National Foundation for Educational Research which was set up some thirty-five years ago to undertake research into problems arising within the publicly maintained educational system; the Schools Council, constituted twenty years ago, to undertake research and development in the area of curriculum and examinations; and the Social Science Research Council which, through its Educational Research Board, distributes funds for research of a fundamental kind mainly to university departments.

Both the sponsors and the research agencies have become increasingly concerned to ensure that policy-makers and practitioners become fully involved in decisions concerning the nature and content of the research projects that are supported from public funds.

A brief account of the ways in which the three main agencies determine their programmes of research will serve to describe the kinds of interaction that now take place between researchers and those for whose benefit their activities are designed.

The National Foundation for Educational Research carries out research directly on behalf of its corporate members - the local education authorities and teachers' associations. It is also regularly commissioned to undertake work required by the Department of Education and Science.

Its own research programme is determined by a Board of Management on which the local authorities and teachers are heavily represented. Furthermore in every local authority there is a liaison officer, appointed by the local authority, whose responsibility it is to maintain contact with the Foundation and on behalf of policy-makers and practitioners in his region, to make representations to the Foundation concerning the topics and issues that are of current concern.

In this way, the staff of the Foundation is informed of the interests and requirements of those who are in day-to-day contact with problems arising in administrators' offices and in schools and are able to submit suggestions for appropriate research activities to the Board which then determines the priorities amongst these proposals.

The Foundation's work on behalf of the Department of Education and Science has also come to involve extensive discussion which centres around the needs of policy-makers and the relevance to those needs of any project that is being considered. Indeed, it is now the declared policy of the Department that it will not sanction the use of public funds for research unless it can be satisfied that there is a reasonable expectation that the research will yield information that is of potential practical utility.

The School Council's constitution is similar to that of the Foundation in that its governing body consists of representatives from central government, local education authorities and teachers. Having regard to the nature of its work, which is primarily concerned with curriculum development and examinations, it has been deemed appropriate that those of its committees which are concerned with the determination of its programme of activities should have a predominant representation of teachers.

Although the Social Science Research Council is primarily concerned with fundamental research carried out in universities, it has neverthless adopted the policy of inviting into membership of its Educational Research Board representatives of educational administrators and teachers in order to ensure that, as far as possible, the work that it undertakes should have regard to current needs and preoccupations.

Monitoring the progress of research

Experience has shown that it is not enough to ensure that an effective dialogue between researchers and practitioners takes place at the preparatory and planning stages. It is clearly desirable to make arrangements for policy-makers and practitioners to continue their involvement with a project throughout its duration so that they can monitor its progress and exercise an influence on its development. It has become a standard practice for every sizeable funded project to have a steering committee on which the potential consumers are fully represented and to which regular reports are submitted by the research team. It is often desirable for a research design to be modified in the light of experience so that promising leads can be followed up and issues that had not been envisaged at the planning stage can be explored. If such modifications are undertaken after full consultation with the consumers and with their agreement, the likelihood of an acceptable outcome is enhanced.

Participation in research

There have been examples on this country - and no doubt elsewhere - of even closer relationships between researchers and practitioners which demonstrably increase the impact that research is able to make on educational practice. These relationships have involved practitioners not only in discussions at the outset of the project and in membership of a steering committee but also in participation in the investigation itself. There have been a number of instances within the Foundation of researches planned and controlled by a group of professional researchers for which much of the field work has been carried out by teachers and others, with a close liaison being maintained between the researchers and these part-time assistants. The effect of this arrangement is that the practitioners concerned feel an additional commitment to the research, acquire considerable insight into its nature and significance and are much more likely, at its conclusion, to examine the implications of its findings.

The School Council has, in recent years, adopted this procedure for most of its projects. Many of its earlier exercises in curriculum development were centrally controlled and nation-wide. Its present practice is to encourage smaller, local developments undertaken by groups of teachers and advisers with the Council's staff offering an advisory role and the provision of the necessary resources.

Dissemination

A crucial factor affecting the influence that research exercises on educational practice is of course the procedure used to disseminate the results of any project. It is generally accepted that a full report should be prepared at the conclusion of any investigation which embodies a detailed account of its design, conduct and findings. This must be presented in order to expose to critical review the research methods that have been utilized and, similarly, to make available the results in such a way as to enable any reader to check their validity. It has to be recognized, however, that such reports are primarily of interest to other researchers and that those involved in the day-to-day conduct of educational affairs are, for the most part, unable or unwilling to digest their contents. If the findings and their implications are to be made generally available, some other forms of dissemination must be devised.

The production of a short, readable summary of a complex investigation is a difficult task. There are few researchers who are able to combine with the array of skills that are needed for the successful prosecution of soundly based studies the capacity to write clear, jargon-free accounts of their investigations. On the other hand, if this task is entrusted to those who have a flair for lucid exposition, but who have little or no grounding in research methodology, the ensuing reports may do less than justice to the efforts of the researchers or may even seriously misrepresent them.

There is no easy solution to this problem. Close collaboration is found to be necessary between those responsible for the research and those who have the necessary skills in communication. Furthermore, it has become increasingly necessary, as economic conditions have become less favourable, to ensure that summaries of research, if they are to reach a large audience, need to be short and cheaply reproduced. These constraints make effective dissemination even more difficult to achieve.

A device recently adopted by the Foundation is to arrange for a short summary article to be published in our own journal, "Educational Research" immediately after any major report has been issued. In this article an attempt is made to set out as clearly and concisely as possible the principal findings of the research and their implications for educational practice. Off-prints of the article are then made available in large quantities, so that copies can be freely distributed to those most closely concerned with the issues concerned or sold cheaply to all others who may be interested in the outcome.

These efforts at dissemination are supplemented by announcements in a news-sheet which is distributed free to all local education authorities and schools and by publicity through educational correspondents of newspapers and educational journals.

It is desirable, too, to offer forms of dissemination other than the production of written reports, no matter how widely these are distributed. Conferences and seminars provide a useful, although time-consuming form of dissemination and, for long-term effects it is necessary to ensure that those responsible for the education and training of teachers are made familiar with research findings so that the courses they offer are up to date in this respect.

It is by this latter means that, in the future, a fruitful relationship between research and practice can best be established. One of the major obstacles to such a relationship is the lack of understanding on the part of many practitioners of the nature, potentialities and limitations of educational research. If the time or means could be found in the initial training of teachers and other educational practitioners to develop a clearer knowledge and appreciation of the role of research and if effective in-service courses could be provided to the same end for the potential consumers of research, the problems of dissemination would be considerably simplified.

Need for flexibility

I would refer finally to a problem that has become apparent in my own country in recent years and which calls for solution if research is to make its maximal impact.

Policy-makers and practitioners identify problems which call for immediate attention. Researchers, on the other hand, tend to regard the solution to such problems as requiring a carefully conducted research project of some three to four years' duration.

It is clearly necessary for researchers to modify their behaviour and to become more flexible in their approach if they are adequately to serve the needs of their clients.

Two developments would seem to be necessary. Research agencies must adapt their organization and practice in such a way as to make it possible for specific inquiries to be undertaken rapidly and at short notice. They must be ready to respond to the request to provide within a very limited time such information as a decision-maker requires to deal with the urgent problems that confront him.

The other development that is manifestly necessary in these circumstances is for researchers to find the time to turn aside from the beaten track which involves them in a succession of medium or long-term inquiries and to review the accumulated findings of research in particular fields. Updated critical reviews of what research has been undertaken in a given area, with a summary of the findings and some exposition of their implications, are likely to give greater comfort to the hard-pressed administrator or teacher than a promise that the results of a relevant research project will be made available to him in three or four years' time.

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ANNEXES

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WORKING DOCUMENTS

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ED-80/CONF.816/2	Rules of Procedure
ED-80/CONF.816/3	Annotated Agenda
ED-80/CONF.816/4	Participants' Contributions (I)
ED-80/CONF.816/5	Participants' Contributions (II)
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ED-80/CONF.816/8	Bibliography
ED-80/CONF.816/9	List of Participants
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ANNEX II

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